The Bochner Eye Institute: Innovations & Care

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This certificate is presented to

The Bochner Eye Institute

in recognition of your eighty-fifth anniversary.
It gives me great pleasure to extend to you warmest greetings
and best wishes on this special occasion. My colleagues in the Government of
Canada join with me in recognizing this significant achievement and wish you many
more years of continued success.

The Rt. Hon. Stephen Harper, P.C., M.P.
Prime Minister of Canada
Ottawa 2014

Acknowledgements

We felt it was important to tell the story of the Bochner Eye Institute and in doing so, share the legacy of the man who links us in life and medicine, Dr. Maxwell Bochner. However, we must acknowledge that we did not do this alone.

Our dedicated staff at our three locations provides the daily support and feedback which is crucial to us in practicing medicine and running the facilities. In turn, they give us the confidence and the desire to ensure that the legacy of Dr. Bochner continues. Ours is a unique story and we're thrilled to share it with the world. We'd especially like to thank Ghani Salim, MD, Lynn Maund, and Nancy Viner for their help in assembling this book.

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Dr. Raymond Stein, MD, FRCSC
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Preface

A Legacy of Care

The Bochner Eye Institute, founded in Toronto in 1929, represents the legacy of an enduring set of values that have been universally passed on to ophthalmologists around the globe – from older to young practitioners alike. The Bochner name embodies a heritage of excellence and compassion in ophthalmic care. What's more, given its presence on the ophthalmic landscape for over 85 years, it is also a testimonial to the idea of adapting to change in the ophthalmic field. As in many sectors, the Bochner Eye Institute has witnessed innumerable changes in ophthalmic diagnosis and treatment, and these new approaches to ophthalmic disease have been handed down over the years, beginning with the Institute's founder, Dr. Maxwell Bochner (1900-1968).

In the past forty to fifty years, the expedited growth of technology for use in the ophthalmology sector has been nothing short of revolutionary for both practitioners and patients. Dr. Bochner played a major role in this expansion as a part of his enduring legacy of always seeking to bring the latest advances in patient care to ophthalmology, which led to Canada assuming a significant place in the ophthalmology sector. This achievement is most notable because it signified a new and bolder presence for Canada in the world of eye care.

When Dr. Bochner launched his practice in Toronto in 1929, there was little technology he could offer his patients. The greatest contribution he could make was giving them a sense of hope. This was consistent with his adage, "Without offering hope to patients, you become a hopeless doctor". Naturally, Dr. Bochner's fellow physicians also lacked the necessary technology and treatments, practicing at a time when folklore remedies were commonly used. There were few treatments to ward off infectious diseases and there were no x-rays, antibiotics, vaccines, antihypertensive agents or endocrinology medications to assist with diagnosis and treatment.

Surgery had yet to advance to treat the broad range of diseases and disorders that were prevalent at the time and, as a result, the use of home remedies – typically without any basis in science – flourished during the early years of Dr. Bochner's practice. Preventive treatments were equally almost non-

existent except, again, for anecdotal, unproven remedies. This led Dr. Bochner to often remark with a sigh, “The tincture of time cured many disorders”.

What Dr. Bochner did have in abundance in those early years was a tremendous measure of compassion in treating the patients under his care. What’s more, this heartfelt approach to the practice of ophthalmology remains intact for those who followed in Dr. Bochner’s footsteps in creating The Bochner Eye Institute. To this day, it stands as a tribute to his core values.

A dedication page in the Ninth Edition of The Ophthalmic Assistant Textbook, a reference volume used worldwide to train Ophthalmic Assistants, tributes to the memory of Dr. Maxwell K. Bochner, “A Master Ophthalmic Clinician whose skillful guidance and use of ancillary personnel in Ophthalmology permitted the delivery of quality eye care to a large number of visually impaired individuals. A caring and concerned physician who developed a strong bond with each and every patient”. These statements encapsulate what Dr. Bochner left behind.

His commitment to the highest standards of training and care was underscored by the impressive fact that all four key ophthalmologists at the Bochner Eye Institute were trained at the renowned Mayo Clinic in Rochester, Minnesota. To this day, the same rigorous approach to ophthalmologic practice is ingrained in physicians and staff alike at the Bochner Eye Institute. Indeed, the current model for early forms of group practice in ophthalmology and in clinical medicine for eye care can be traced directly to the early days of Dr. Bochner’s stewardship.

This book is a testament to Dr. Maxwell Bochner and the Institute that bears his name, with four dedicated ophthalmologists who continue his work, and to future physicians and staff he continues to inspire.

Here, we tell the story of how the Bochner Eye Institute improved eye care and the related medical technology, evolving in parallel with the cultural and physical growth of Toronto over the same time period.

Our objective was to touch on every aspect of ophthalmology, from cataracts to glaucoma and from contact lenses to ophthalmologic diseases and conditions. The development of related treatments and technologies for these is intertwined

with the informative and colourful stories of Dr. Maxwell Bochner, Dr. Harold Stein, Dr. Albert Cheskes, Dr. Raymond Stein and Dr. Jordan Cheskes.

The Bochner Eye Institute broke new ground with the establishment of the first ophthalmic surgical suite in Ontario in 1998. It has been performing major eye surgery, funded by the Province of Ontario, ever since under the aegis of the College of Physicians and Surgeons of Ontario.

Dr. Bochner had additional enormous impact on medicine in the city in which he lived, helping to establish two major hospitals, Mount Sinai and The Scarborough General. Ultimately, he held the position of Chief of Medical Staff at both institutions – an accomplishment never repeated in Toronto hospitals or, to our knowledge, in any large Canadian city.

We think Dr. Bochner would approve of the way in which his legacy is being carried forth today. He possessed the unique ability to inspire confidence in everyone he met, from his patients to the young ophthalmologists he mentored.

We are forever in his debt.

Dr. Harold Stein, MD, FRCSC
Dr. Albert Cheskes, MD, FRCSC
Dr. Raymond Stein, MD, FRCSC
Dr. Jordan Cheskes, MD, FRCSC

"As a doctor you always have to offer your patients hope because without hope you are a hopeless doctor."

Dr. Maxwell K. Bochner

Chapter One

A Vision Defined

Dr. Maxwell K. Bochner

The story of the Bochner Eye Institute, of course, begins with Dr. Max Bochner, his extraordinary impact on medical care in Toronto and his role in helping to develop two large hospitals that have become synonymous with excellence in healthcare in a range of therapeutic domains.

The Bochner story is interwoven with that of a cohesive family committed to the highest social ideals, and how three generations of ophthalmologists have passed the torch from one to the other in tribute to an incredible man. It is also a chronicle of the transformation of Toronto into the cosmopolitan city it is today, from its original, more parochial roots. Last, it's a story that traces how technology and medicine have combined to create a modern, cutting edge world of healthcare far removed from the one Dr. Bochner first knew.

This journey of several lifetimes continues today and is told and retold by innumerable grateful patients who have been cared for and continued to be treated at the Bochner Eye Institute, which inspired these stories in the first place.

The Bochner lineage finds its roots in a young man from Niagara Falls, Ontario, Harold Stein, who fell in love with a physician's daughter, leading to the adventure of a lifetime. It's also founded on a Toronto youth whose mother credited Dr. Bochner with

Dr. Maxwell Bochner (left) and Dr. Harold Stein (right)

saving her life. That man grew up to be Dr. Albert Cheskes, one of the four ophthalmologists who currently practice at the Bochner Eye Institute.

This book also recounts the story of two sons, Raymond Stein and Jordan Cheskes, who followed in their fathers' footsteps to become pioneers in their own right in ophthalmic medicine as part of the commitment to healthcare initiated by Dr. Bochner.

Stories like these don't always have a defined beginning or end. The influence of these noted professionals can be felt through the generations and through the ebb and flow of life, one person's life overlapping with the next. But our story begins with Dr. Bochner.

Like many great men, Max Bochner was a unique individual who overcame humble beginnings and prejudice to leave an enduring mark on the city he loved. Max grew up in "The Ward," as Toronto's Jewish neighbourhood was called at the turn of 20th century, as the son of a scrap merchant. He was blessed with amazing intelligence and academic ability. Despite these gifts, however, he still struggled to be admitted to medical school and to become a licensed physician and, later, an ophthalmologist. As a young Jewish boy in a city dominated by an anti-Semitic culture, few doors opened easily for him.

Max Bochner was born on October 1, 1900. Records show that when he was just one year old, Toronto's Jewish population was small − roughly 3,000 people – and was concentrated primarily in "The Ward" bound by College Street, Queen Street, Yonge Street and University Avenue, and later by Kensington Market.

The situation began to change when Max reached his late teens and early twenties as the various people of the diaspora triggered by World War I sought refuge in more stable countries where they could build a bright future. In 1901, just a year after Max's birth, Toronto had a population of just 238,000, roughly 440,000 people including the suburbs. By 1931, the number had more than tripled.

This amazing trajectory of growth continues today. Currently, there are 2.6 million people in the city itself and more than six million in the Greater Toronto Area.

Chestnut Street in "The Ward."

Amid all this rapid change, Max knew one thing for certain: he wanted to go to medical school. He certainly had the brains for it, but money was a major obstacle. Undeterred, he ventured out and earned the $800 he needed to pay the tuition by selling Encyclopedia Britannica door to door, sometimes hoisting his bicycle onto the train as he travelled to small towns and villages far from Toronto in order to find customers. He finally fulfilled his dream, but after graduating from medical school no hospital would accept him as an intern because of his religion. Nevertheless, Max was undeterred and he headed to the United States where he not only completed his medical training, but he also earned a scholarship and then a fellowship at one of the world's most prestigious eye hospitals, University of Pennsylvania.

Once again, prejudice blocked Max's admission to Toronto's mainstream hospitals, despite his impressive credentials as among the city's first fully qualified ophthalmologist. In retrospect, perhaps this rejection was serendipitous: Dr. Bochner helped found Scarborough General Hospital (known today as The Scarborough Hospital) and contributed to Mount Sinai Hospital developing from a small maternity hospital in Yorkville to the thriving and respected teaching institution it is today. Subsequently, Dr.

Bochner was appointed Chief of Staff at Mount Sinai and, when it opened in 1956, Scarborough General Hospital. He became chief at two major hospitals.

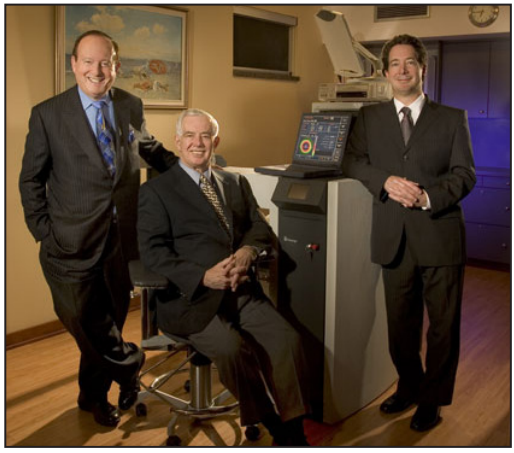
Journeying back in time, in 1926 he opened his office on Bloor Street in an old, unassuming house. Years later, in 1960, Dr. Bochner moved his practice to the Park Plaza Hotel at Avenue Road and Bloor as the first iteration of the Bochner Eye Institute. At the time, it bore the name of the building in which it was housed: Park Plaza Eye Associates.

When Dr. Bochner first launched his practice, Canadians were facing harsh economic times as there was no socialized medicine or provincially run Medicare plan. Some patients could not afford to pay for their treatment at all; others could only offer farm produce as barter, but Dr. Bochner refused to turn patients away. For the poor who had no funds, he waived payment and accepted fruit baskets, vegetables and even chickens from local farmers. Wealthier patients might have paid a little more than the average wage earner, but it all evened out in the end.

Bochner Eye Institute, present day.

This sense of fairness continues today at the Bochner Eye Institute. Dr. Harold Stein, along with Dr. Raymond Stein, have travelled to third world countries, providing desperately needed eye treatments and surgeries to those who might otherwise become blind or remain blind.

Dr. Bochner's office became a landmark medical practice in Toronto, destined to endure for nearly 60 years, before building renovations forced relocation a few blocks west to 40 Prince Arthur Avenue. It was here that the Bochner Eye Institute found its place in history to continue what its founder had begun.



Dr. Albert Cheskes, (left) Dr. Harold Stein (seated) and Dr. Raymond Stein (right)

The Bochner Eye Institute on Prince Arthur Avenue was the first surgicentre − where surgical procedures are performed outside a hospital − in Ontario. Dr. Albert Cheskes, who joined the practice in 1966, recalled that it was controversial because at the time there was great debate around social medicine in Canada, with a focus on creating a system in which all citizens are treated equally.

One of the political hot potatoes of the day was the idea of two-tier medicine, a private system operating within or in parallel with a publicly funded system which would allow those with the means to do so to jump to the front of the line.

"In fact, two-tier medicine already existed because those who could afford it simply went for treatment to the United States or went overseas," said Dr. Cheskes. "What surgicentres did was charge the public system for the same procedure at the same rate the doctors would be paid if they did it in a hospital. What the patient paid on top of that was a facility fee which was allocated to the clinic for equipment and support.

When the Bochner Eye Institute and other surgicentres established for cosmetic treatments hit the media headlines in June 1987, it sparked a political

firestorm in the Ontario Legislature. At the time, the Bochner Eye Institute was still located in the Park Plaza Hotel, providing in-house eye surgery.

The government's reaction was to review all such facilities. Following hearings, they decided that in some circumstances these types of centers played a valuable role in providing much-needed eye health care, which eased the pressure on hospitals and freed up resources for waiting patients.

However, it was illegal to perform "private" surgeries in clinics and the Bochner Eye Institute remained controversial. Dr. Harold Stein approached the Ontario Legislature and presented the case in favour of such centres, arguing that not only did surgicentres provide patients quicker treatment, they allowed patients greater access to resources. Facilities could be diverted to treating more serious, life-threatening cases.

Apparently, Dr. Stein made a convincing case because not long afterward, in 1991, the Ontario Government and The College of Physicians and Surgeons designated The Bochner Institute the first and only approved licensed eye centre in Ontario. The Institute was about to perform one of the first laser vision correction procedures in Canada.

Since then, the concept of surgicentres has expanded in scope. From surgeries for hernias and cataracts to cosmetic surgery, private clinics now perform a range of procedures which used to be performed in the hospital environment. Moreover, additional procedures − such as knee and hip replacements − are being considered each year.

More than 100,000 patients have had laser surgery since that initial procedure in 1991 and the Bochner Eye Institute continues to pioneer not just the application of various technologies, but the use of other treatments as well. Naturally, the Institute's continued quest to ensure that patients have access to the most modern surgical techniques and technologies didn't stop with the first laser machines.

Over the years, the Bochner Eye Institute has introduced to its practice state-of-the-art surgical equipment designed to provide patients the most advanced treatments available, offering procedures to patients who can't be helped by other technologies.

"We know that advances in science and medicine will continually evolve. What's exciting for us as doctors is being able to stay on top of those advances that offer greater numbers of patients with growing challenges an array of solutions to preserve or improve their vision," commented Dr. Raymond Stein.

There is no way to know precisely what the technology and science sectors will bring in the future, but some intriguing new possibilities are being discovered in clinical trials.

There's no doubt that the Bochner Eye Institute will be on the forefront of investigating these potential solutions as they become available and implementing them in order to better meet the needs of its patients.

Chapter Two

An Inspiration for Generations

Map of Toronto, circa 1900

Dr. Bochner's deeply-felt social values were passed on to his son-in-law Dr. Harold Stein, his grandson, Dr. Raymond Stein − a former patient − Dr. Albert Cheskes, and his son, Dr. Jordan Cheskes. A remarkable multigenerational chain of continuity was established.

The Toronto that Max Bochner was born into was dramatically different from the bustling multicultural city it is today. Horse-drawn carriages filled the streets and at the time, 200,000 people lived in a much smaller, more compact city.

Dr. Bochner's father, Abraham C. Bochner, was a "rag and bones" man who trolled the streets in a horse-drawn cart, gathering old clothing, scrap metal and rubber − anything he could find to resell.

Later, he would sell eyeglasses door to door, recalled Joseph Bochner, Dr. Bochner's son. "People didn't go to opticians as much. They just tried on glasses until they found a pair that worked for them," he noted.

Abraham's core business was the earliest form of recycling. While it was a humble trade for immigrants who ventured across the ocean from Europe to Toronto, it was often the only type of work they

Max Bochner, left, with his sister Freda and brother Gerry.

could find. For many, language and education were barriers to progress, but the greater issue was often anti-Semitism. In those early days, the Protestant population of Toronto had little tolerance for religious and ethnic minorities.

As a result, life wasn't easy for immigrants like the Bochners. For a while, the family lived in Midland, Ontario, where young Max attended public school before returning to Toronto where he enrolled in Jarvis Collegiate.

Abraham was one of four brothers born and raised in the town of Podgórze, near Krakow, at a time when the borders of Austria, Poland and Hungary were constantly changing. Three of the four brothers made the trip to Toronto and between them built moderately successful businesses.

The fourth brother, Salomon (1899-1920), was born after the three elder brothers left Europe around the 1880s. Salomon became a world famous mathematician who lectured at the University of Berlin and Munich University. He narrowly escaped death when the Nazis assumed power in 1933. After fleeing to America, he accepted a position at Princeton University where he remained until his retirement in 1969.

Over the years Abraham, established the business with his brothers and made a good living. As a Jewish family among a small population of roughly 3,000 Jews living in Toronto in 1901, the Bochners were a minority in the city. During the earliest part of the 20th century they lived with other non-British immigrants in "The Ward".

By 1917, Abraham was doing well enough to strike out further west, first at 80 Grange Road and later relocating to Markham Street. From these humble beginnings, Max Bochner would rise to become an icon in Toronto society, but it was a struggle every step of the way.

"My father sold Encyclopedia Britannica, bicycling door to door to raise money for university," recalled Joseph Bochner.

Sigma Alpha Mu Fraternity, University of Toronto, Omega Chapter 1922-1923.

Max Bochner attended the University of Toronto and was a member of the Sigma Alpha Mu Fraternity. After graduating, as he wasn't able to secure a position at a Toronto hospital, he studied at the University of Philadelphia. There, he pursued his specialty in ophthalmology and was awarded a residency at the Graduate School of Medicine at University of Pennsylvania.

Dr. Bochner's graduation photo

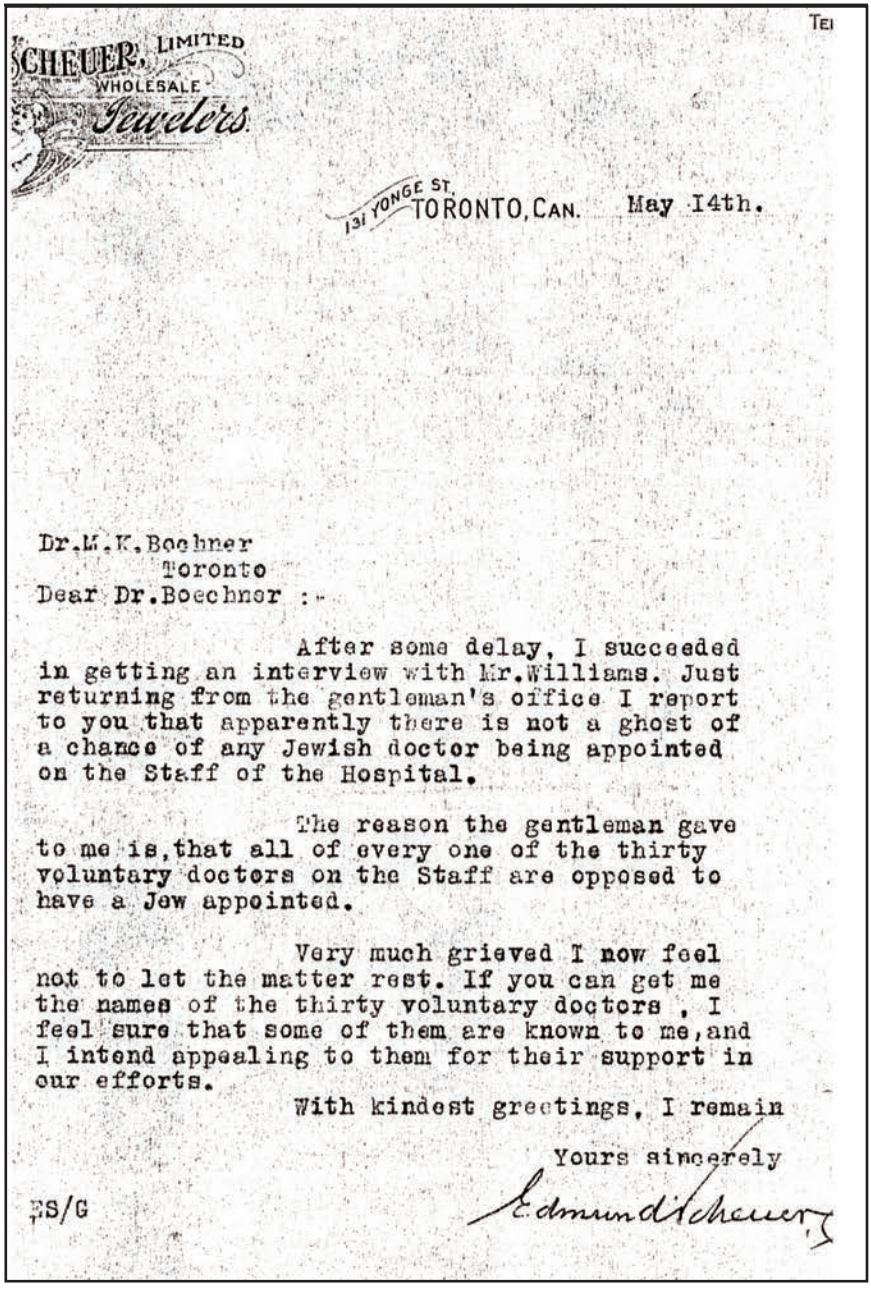
"The medical students were big jokesters," said Joseph. "Max told me about a stage show in which the medical students pretended to saw off a man's leg. It was a wooden leg, of course, but they used real blood. People in the audience passed out. It was probably funny at the time, but he was quite embarrassed about it later."

Unable to undertake a residency in Toronto in 1924, Dr. Bochner continued his studies at Barnert Hospital, a 236-bed facility in Patterson, New Jersey. Following that, he moved on to a more desirable position as a pathologist at the Kings Park Psychiatric Center on Long Island, New York.

"It was there that he developed − we're not sure if he actually invented it − the technique of putting an X on the eye on which he had to operate," said Joseph Bochner. "He told me that he'd seen surgeons remove the wrong eye. They still mark the X everywhere to this day."

When the hospital for sick children was built, Dr. Bochner had operated on the Chairman of the Board. He asked Dr. Bochner if he would like to be on the Sick Children's staff and why he wasn't on the staff. He offered to send in an application on his behalf and so he did. He received this reply, written below denying him privileges. How times have changed!

"In fact, about thirty doctors at the hospital signed a letter saying they would resign if he was appointed," remarked Joseph Bochner. "Some were clearly



SCHEUER, LIMITED
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131 YONGE ST.
TORONTO, CAN. May 14th.

Dr.M.K.Boehner
Toronto
Dear Dr.Boechner :-

After some delay, I succeeded in getting an interview with Mr.Williams. Just returning from the gentleman's office I report to you that apparently there is not a ghost of a chance of any Jewish doctor being appointed on the Staff of the Hospital.

The reason the gentleman gave to me is,that all of every one of the thirty voluntary doctors on the Staff are opposed to have a Jew appointed.

Very much grieved I now feel not to let the matter rest. If you can get me the names of the thirty voluntary doctors , I feel sure that some of them are known to me,and I intend appealing to them for their support in our efforts.

With kindest greetings, I remain

Yours sincerely

ES/G

Edmund Scheuer

Letter from Board Chairman, Edmund Scheuer (Toronto Hospital for Sick Children) to Dr. Bochner.

anti-Semitic while others feared that Dr. Bochner's superior qualifications would cost them their patients."

Undeterred, Dr. Bochner quickly earned a reputation as the "go to" guy for a host of eye injuries and diseases. In fact, many non-Jewish doctors took their own family members to see him because of his skills and prestige. Despite their efforts on his behalf, however, his entry into mainstream hospitals remained barred by the entrenched establishment that prevailed.

"When I asked him about it, he just said he didn't want to make waves, and that he didn't want patients upset and doctors resigning because of him," recalled Dr. Albert Cheskes, who joined the Bochner practice in the mid-1960s.

Instead, Dr. Bochner discovered that his career path lay at the "immigrant" hospital at 100 Yorkville Avenue where, a few years earlier, women from the Jewish community had knocked on doors and begged for enough funds to open an institution of their own: The Hebrew Maternity and Convalescent Hospital. By 1924, it was registered with the Ontario Government as Mount Sinai Hospital. In mid-century, a new facility was built on University Avenue. Today, the original building in Yorkville is occupied by the retail store, Teatro Verde and boasts a historical plaque marking it as the original site of Mount Sinai Hospital.

The first hospital was a modest facility which quickly became overcrowded due to demand, so much so that, ironically, Dr. Bochner's own father, Abraham, couldn't get a bed when he needed cataract surgery and had to recover in the hallway following the procedure.

Still, Mount Sinai, like Toronto, was enjoying rapid growth. Dr. Bochner became the hospital's Chief of Staff, a position he held for 38 years until his retirement in 1966. He was able to select the rest of the original staff.

Over the years, Dr. Bochner became a renowned surgeon and hospital administrator, playing a significant role among the city's elite to influence public policy in the municipal political sphere.

Chapter Three

The Bochner Journey Continues

Dr. Bochner in the OR.

In the late 1920s, when Dr. Bochner was in the process of building his Toronto practice and developing a reputation in his chosen field, the practice of medicine was light years away from the technology-driven sector it is today. It was to change dramatically as both advances in science and in our understanding of the human body accelerated exponentially. In some ways, Dr. Bochner's decision to pursue ophthalmology was serendipitous: he became active in the field just as it entered a period of rapid expansion and innovation. Still, in 1929, the Great Depression were deeply felt and Toronto's economy suffered greatly as a result. At times, patients simply did not have the funds to compensate physicians.

"No matter what the circumstance, however, with Dr. Bochner, the patients always came first," stated Dr. Harold Stein. "Even if they didn't have any money, Dr. Bochner never turned patients away," he continued. This maverick ophthalmologist proceeded to create the renowned Bochner Eye Institute, continuing his mentor's work. Dr. Stein became Dr. Bochner's son-in-law by marrying his daughter, Anne.

The 1920s were replete with internationally-recognized medical breakthroughs, some occurring in Toronto. One of the best known of these emerged in 1920 when Dr. Frederick Banting of the University of Toronto and his colleague Charles Best identified insulin. This enabled them to save the lives of diabetic children, given the fact that no other treatment for diabetes existed at the time.

Around the world, new advances in science were saving people from dying, including the discovery of penicillin in 1928 by British scientist Alexander Fleming. The growing use of this antibiotic would prove invaluable in preventing infections of all kinds and is a mainstay of medical treatment today. Equally valuable, for example, was Austrian Karl Landsteiner's development of a test to identify blood types, allowed doctors to provide patients with

blood transfusions. All of these achievements were awarded Nobel Prizes for Medicine in the 1920s.

Dr. Bochner's ophthalmologic practice was also advancing, however, it was crude compared to today's standards. "In those early days it was more the art of medicine than the science," noted Dr. Harold Stein. "Dr. Bochner was extremely gifted in forming relationships with patients. This was one of the things I've learned from him and it remains an area of focus for us. In the early decades of the 20th century, the art of one's practice overwhelmed the technology because science was not highly developed and we didn't have the medicines we have today. In Dr. Bochner's early days, in cases of glaucoma, one would have had to remove the eye completely which, of course, we don't have to do today," explained Dr. Stein.

The eye is among the most sensitive and vulnerable parts of the anatomy. Owing to its essential nature, it is little wonder that it became one of the earliest specialties in medicine. The term ophthalmology was derived from the Greek opthalmos, meaning eye, combined with logos, meaning thought or discourse. It dates to Sanskrit manuscripts from 5 B.C., when surgeons used sharpened sea shells to cut into and displace the opaque lens of the eye, in a process called "couching" to treat cataracts. This procedure meant that

Charlotte Andrews married Dr. Max Bochner.

light could again enter the eye and strike the retina; however, since corrective glasses had not yet been developed, the patient's vision remained blurry. Still, it was preferable to total blindness.

The history of ophthalmology as one of the first medical specialties is interesting. The literature reported cataractous lenses (a lens clouded by cataracts) being broken up into small pieces, probably with the same blurred vision result.

This was refined in 1753 by Dr. Samuel Sharp of London. It wasn't until more than a century later in 1867, however that Dr. Henry Willard Williams of Boston started using silk sutures in eye surgery.

In the 1800s, for the most part, ophthalmic surgery was being performed without the benefit of general anesthesia, which wasn't available until the 1840s. Local anesthetic in the form of liquid cocaine eye drops was the standard of care. By 1850, the first crude but workable ophthalmoscope was unveiled, allowing doctors to examine the effects of diseases like glaucoma in much clearer detail.

The original location of Mount Sinai hospital opened in 1923 as the Toronto Hebrew Maternity and Convalescent Hospital. In 1924 the name was changed to Mt. Sinai and in 1973 it moved to a new building and location on University Avenue.

Other common eye diseases or conditions such as detached retinas weren't effectively treated until 1920 when Swiss physician Jules Gonin developed the ignipuncture technique which saved the sight of innumerable patients.

Until the turn of the twentieth century ophthalmology, at least in Toronto, was considered a secondary specialty owing to the fact that the technology was limited, and there were few procedures and medicines available.

The entire ophthalmic landscape in Canada began to change in 1927 when Dr. Bochner started to practice in Toronto. “He was a pioneer in the field in Toronto,” noted Dr. Harold Stein. “He trained at the world famous Wills Eye Institute in Philadelphia where he received a full fellowship in ophthalmology.”

Most of Dr. Bochner’s competitor-colleagues in Toronto were either Ear, Nose and Throat or Eye specialists. He was truly the first highly trained ophthalmologic surgeon to practice in Toronto from the late 1920s onward.

Joseph Bochner recalled his father Max as “a man who loved painting, playing the violin and fishing”. Physically, Dr. Bochner was short-statured. He possessed a gentle demeanor and a warm smile, with the ability to make patients immediately feel at ease.

The same year he opened his practice, Dr. Bochner married Charlotte Andrews who lived with her parents at 373 Markham Street, just up the road from his own parents’ home and in close proximity to Andrews Avenue, a couple of blocks south. The Avenue had been named after the Andrews family that had worked as land developers in Toronto.

In addition to his acknowledged skills as a physician, Dr. Bochner was also a great leader and administrator. As Chief of Staff at Mount Sinai Hospital, he was responsible for selecting the heads of the Departments of Medicine and Surgery. He worked tirelessly to mold the staff to his high professional standards, co-labouring with the Board of Directors to create the Hospital Foundation, which today remains a jewel in the crown of Canadian medical institutions.

Perhaps, however, it was in his role as a dedicated physician in which he was most influential. “I remember that although we weren’t particularly observant, we did try to have family dinners on Friday night, but for 20 years I didn’t see my father much,” commented Joseph. “We’d just be sitting down, the phone would ring and he’d have to leave the dinner table because of an emergency.”

Anne, Dr. Bochner’s daughter, remembers her father told her that for the longest time he was torn between a career in medicine and his vocation as a violinist. “What’s more, he was old school,” stated Anne. “He wore starched, detachable collars and they were so tight that they cut into his neck. When he went out on rounds he wore striped trousers and spats, a protective wrapping over the top of the shoe which covered the socks and lower ankle. Spats were

a popular fashion accessory of the time. If we accompanied him on an outing, he made sure we all were dressed in our best clothes." Anne enjoyed going on rounds with her father at St. Mary's Hospital.

As a result of Dr. Bochner's long-term commitment to medicine and to his patients, he was a role model for those who worked with him. "Dr. Bochner was a legend and a true inspiration over the course of the forty years he practiced," recalled Dr. Harold Stein, who shared an office with Dr. Bochner on Bloor St. West for many years. The location is now the site of the Bata Shoe Museum.

"He treated all patients with humility, kindness and trust, often forgoing his fee if a patient was needy. He was a skilled cataract surgeon who brought sight to so many people. He taught me to give patients hope, even when none really existed," continued Dr. Stein.

A testimony to his skill and renown as a surgeon emerged when Lady Flora McCrea Eaton (1880-1970), the wife of second generation department store magnate Sir John Craig Eaton (1876-1922), needed cataract surgery and turned to Dr. Max Bochner. As the wealthiest woman in Canada, Lady Eaton could have chosen to have her procedure performed by any surgeon, but she knew of Dr. Bochner's reputation.

"Of course, she didn't know the story about Toronto General Hospital (TGH) refusing my father a position," stated Joseph Bochner. While her preference was to have the procedure at the TGH, a hospital she had generously endowed over the years and with which she had a strong connection, she was eventually persuaded to cross the street to Mount Sinai if she wanted Dr. Bochner to perform the surgery. "I think my dad charged her $1,600, which wasn't too bad in those days," recalled Joseph. "He tended to charge people what they could afford. If you had no money, you paid nothing."

Lady Eaton acknowledged Dr. Bochner in her autobiography, Memory's Wall, (Clarke, Irwin & Co. 1956). "Thanks to Dr. M. K. Bochner, who has operated on both my eyes, I still have perfect sight with glasses."

She also signed and inscribed the book for Dr. Bochner: "To Dr. Bochner who gave me back my sight, useful vision ... and so helped me to write this book. With my everlasting gratitude for his skill, my abiding faith in him and affectionate regards, Flora McCrea Eaton."

Chapter Four

Two Hospitals, One Chief of Staff

Charlotte, Dr. Bochner, Joseph and Anne

Dr. Max Bochner was kept busy by the various aspects of his personal and professional lives. Between his practice as the city's pre-eminent ophthalmologist, acting as Chief of Staff at Mount Sinai Hospital, and the father to two children, Anne and Joseph, he worked long, arduous hours. Of course, that didn't mean he wouldn't agree to take on more responsibility if asked, especially if the requesting party was someone who had been loyal to him when it mattered most.

Upon returning to Toronto in 1926 and failing to find a suitable position at large established hospitals, including the Hospital for Sick Children, Dr. Bochner soon found he was needed at St. Mary's Hospital − a small, private hospital on Gloucester Street. St. Mary's had been built by the Sisters of Misericorde, a small Catholic order dating back to 1639. Misericorde translates as "mercy". Three Sisters from France, known as "Les Religieuses Hospitaliares de la Misericorde de Jesus," were led by Ursuline nun Mother Marie of the Incarnation, among others.

The order began serving the Toronto community through Rosalie Hall which was founded in the 1800s. In 1914, they built St. Mary's Infant Home on Bond Street in response to the needs of single mothers.

St. Mary's Hospital on Jarvis Street in 1926 where Dr. Bochner started after being refused a position by Toronto General Hospital because he was Jewish.

As the years passed, the city grew and the demands for care increased. As a result, the Sisters bought two properties on Jarvis Street. One of these became St. Mary's Infant Hospital, a residence for young, usually unwed mothers and their babies. In 1925, it was renovated to allow general medical and surgical treatments as well, and Dr. Bochner started practicing there shortly afterward, later becoming Chief of Medical Staff. It was this connection that would lead to his role in founding the Scarborough General Hospital in 1956.

The portrait commissioned by the Sisters of Misericordia to honour Dr. Bochner for his role in founding the Scarborough General Hospital.

Around 1929, Dr. Max Bochner opened his own office on Bloor St. West in an old house in which he occupied the ground floor and where he stayed for 30 years.

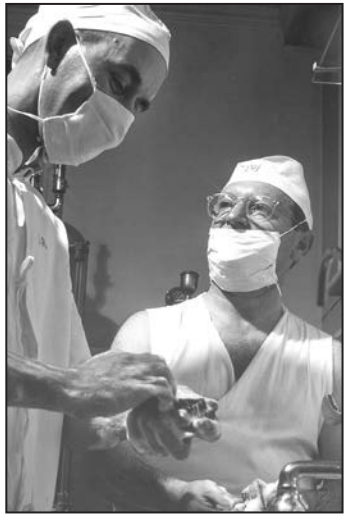
"He had a system whereby young ophthalmologists worked almost like residents, working up the cases for him. He had some 25 doctors over the years," said Dr. Harold Stein. "That way they could learn about operating a practice and start acquiring patients for their own practice. It was a very unique system. It's how I started as an ophthalmologist assistant." By the time Dr. Harold Stein joined him as a partner in 1958, it was obvious that the office was too small to accommodate both of them and their growing practices.

"Around 1960 we moved to the Park Plaza Hotel which also housed offices," recalled Stein. "It was a big move because the Park Plaza was a huge identifying landmark in Toronto at that time. It was great because you could just tell people to come to the hotel and they'd find the office. The hotel also provided tea, coffee and cookies which became really popular. People would make their appointments around cookie time if they could!" Coffee was served in china cups.

"In addition to our offices, Dr. and Mrs. Bochner had their home on the top floor," said Joseph Bochner. "One day as Dr. Bochner was headed for work, he walked right through the glass doors separating the hotel from the apartments. In intense sunlight, it was very difficult to see whether they were open or

closed. His suit was shredded, but he wasn't badly hurt. He simply turned around, returned to the apartment and then went back to work. He was like that. He didn't like to make a fuss."

Times were tough, however. The Depression of the 1920s was having a brutal impact on the world and the regional economy, and Toronto was no exception. "He would accept as payment chickens or produce from farmers who had no cash," recalled Dr. Albert Cheskes, who joined the practice in 1966. "People didn't have jobs and they certainly lacked cash. As there was no Medicare system, patients had to pay for medical care out of their own pockets. The eye care fees were something like five dollars for an initial exam and three dollars for a follow-up, which was a lot of money back then," he explained.



Dr. Bochner scrubs up circa 1960

"I believe we'll still take chickens, but I think we prefer them already plucked," joked Dr. Jordan Cheskes. One patient was so grateful for Dr. Bochner's treatment of her husband, a former Duke of Malta, that she bequeathed to him a 500-acre farm in Ontario, which increased in value over the years. "He wouldn't accept any money, but he sold the farm and gave the money to Mount Sinai," recalled Joseph Bochner.

The demand for medical care continued to increase and in 1952, the Sisters, along with Dr. Bochner and shepherded by the young Harold Stein, roamed the farmlands of Scarborough, finally buying 28 acres of pasture at the corner of Lawrence Avenue and McCowan Road. The idea was to erect a new, modern hospital to replace their Sherbourne St. Downtown Toronto facility.

At the time, the land was essentially farm country with rolling hills, dirt roads and cows wandering about the fields. However, the Sisters knew that with the post-war economic boom and the flood of immigration to Canada and Toronto, in particular, suburbs like Scarborough would quickly fill up with newly-built homes, shops, roads and people who would eventually need a community hospital.

Future site of Scarborough General Hospital, circa 1950.

In 1951, the Sisters began planning for and raising the $2.3 million needed for a 100-bed hospital. The following year, they acquired 25 acres of farmland near the original settlement of David and Mary Thomson, the founding pioneers of Scarborough. They raised funds the old fashioned way, selling "bricks" for $1 each among the community until they had amassed enough funds to get rolling.

While Scarborough started on a small scale, plans were drawn for an expansion to 500 beds. To help hospital officials realize these ambitious plans, the Sisters turned to the one man they trusted and who they knew could help them assemble a top-notch medical team to staff their new hospital: Dr. Maxwell Bochner.

Nathan Phillips (1892-1976), Mayor of Toronto from 1955 to 1962, had this to say at Dr. Bochner's retirement dinner in 1967 regarding this important decision: "They recognized he had more on the ball than a charming wife and his own good looks. Of course, he was a little short, but here was a kind, sympathetic, wholesome and intelligent young man, already a leader in his profession, with a brilliant mind, a great heart and magic hands. He was a proud person and careful about the company he kept. What better company than the Sisters of Misericorde?"

Unveiling the portrait of Dr. Bochner at Scarborough General Hospital on his retirement in 1966.

The ambitious undertaking, noted former Mayor Phillips, was tailor-made for Dr. Bochner. "They had a project in which he was interested, one which would start on a modest scale but had an unlimited opportunity for service to humanity," he told the audience. "It presented a challenge, just what Dr. Bochner wanted. Here was a life's work in a field he loved and a partnership was inevitable."

Despite his existing responsibilities, Dr. Bochner accepted the position of Chief of Staff, in addition to his existing role as Chief of Medical Staff at Mount Sinai and St. Mary's, although the latter would be closed and torn down when Scarborough General Hospital opened. Today, it would be unthinkable to have just one person fill those three demanding positions, but Dr. Bochner was an extraordinary man.

Of course, there were challenges. Lawrence Avenue was a dirt road east of Victoria Park Avenue and getting there by car in spring or fall was not easy. And as part of the Building Committee, Dr. Bochner had to venture to the far-flung location frequently.

Fortunately, he had some help. Chauffeuring him, more often than not, was a young man who himself was taking his first steps on his own storied and exemplary medical career, Harold Stein. Young Harold had the good fortune to meet Dr. Bochner's daughter, Anne, just as he finished his first year of medical school at the University of Toronto. He was working at a summer camp teaching children to ride horses and Anne was at the same camp helping out in the art program.

Harold and Anne fell in love and Dr. Bochner took a keen interest in the medical education of Harold. At the time, the enthusiastic medical student was thinking of specializing in gynecology and obstetrics. He began his internship at Mount Sinai Hospital. "I was fortunate to have met him when I did and he convinced me to go into ophthalmology instead of obstetrics," recalled Dr. Stein. "It was a good thing too, because as I discovered in my rotation, ob/gyn doctors never get any sleep. Babies have a habit of appearing at unusual hours! Dr. Bochner provided me a spring board into ophthalmology and a practice plan that still exists all these years later."

Scarborough Hospital and Rosalie Hall, as it was known then, opened in 1956 with Dr. Bochner as Chief of Medical Staff, a position he held until

Scarborough General Hospital, a few weeks before it opened in April 1956.

his retirement ten years later. The area was largely rural. The Toronto Transit Commission (TCC) buses ran only as far as Kennedy Road a couple of miles to the west, and nurses and staff without cars had to walk the rest of the way.

Undaunted, the feisty leader, Sister St. Roseline, cajoled a local car dealer into providing a station wagon to shuttle people back and forth. She also enlisted firemen to act as volunteer drivers for six weeks until she had brought enough political pressure to bear, after which the TTC began servicing the new hospital.

Dr. Bochner played an important role in the entire hospital development process. He was trusted by all who knew and worked with him, imparting a sense of ethics to staff at both hospitals, one a Jewish hospital and the other a Catholic institution.

He chose only the most highly accomplished physicians as chiefs of specialty departments. He was also loved and respected by the Sisters of Misericordia and their Head Sister Marie De Liesse. He provided them great advice. Notably, the first Jewish doctor in Canada to hold this position.

As the result of his reputation and skill, Dr. Bochner was in a position to attract a great number of wealthy patients to St. Mary's for treatment and

surgery. This, in turn, filled beds and created cash flow − this was long before public health insurance was introduced in Ontario − enabling the Sisters to pay the hospital expenses and to provide services to those less fortunate. The relationship the Sisters enjoyed with Dr. Bochner was one they never forgot.

The Sisters of Misericordia welcomed Dr. Bochner in 1926.

"When Harold and I got married in 1952, many of the Sisters came to the wedding," recalled Anne Stein. "It was a great honour for all concerned. My dad said it was the first time any of the nuns had been in a synagogue."

At a time when discrimination was rampant in Canada, Dr. Bochner selected department heads without regard to ethnicity or religion. As a physician, he treated patients in the same way, regardless of their ability to pay for treatment. "Through everything, he maintained a quiet sense of humour, high ethical standards and a real sense of what was right and wrong," stated Dr. Harold Stein, who became Chief of Ophthalmology at Scarborough General Hospital (now called the Scarborough Hospital).

Throughout their lives, Dr. Bochner and his wife Charlotte were tireless supporters of their community. She was a founding force of what would later become the Baycrest Centre for Geriatric Care.

Charlotte worked with many women's organizations, while his advice was sought on many matters, even beyond the sphere of medicine. Dr. Harold Stein, who worked closely with Dr. Bochner from the first moment he started practice at age 29, remembers a man who was compassionate above all else.

"Dr. Bochner always treated his patients as human beings first and instilled confidence in all those who associated with him," said Dr. Harold Stein. "With his wife Charlotte by his side, he became friends with and a trusted ally of many of the city's elite, among them mayors, political leaders and the philanthropic donors who helped raise money for his many projects which helped make Toronto what it is today," he continued.

Dr. Ray Stein remembers that time with great wistfulness. “I wish I had gotten to know him as a doctor, but I was just 13 when he died,” he said. “I remember that he had a cottage on Georgian Bay and we used to visit it together. One day in the library he found a sketch of a buried treasure map, located ten steps from a particular tree and five steps from a certain rock. So we went to find it – I never thought for a minute that he’d put it there – and we eventually dug up this wooden box full of coins. Naturally, I never thought to check the dates of those coins. It was loot! I always meant to do that with my own kids.”

His grandfather loved fishing and encouraged all of his grandchildren to join in. “Of course, fishing is pretty boring for a bunch of kids, so he always organized contests,” said Dr. Ray Stein. “He’d award a prize for the biggest fish, the first fish, the last fish, even the smallest fish! He really loved the sport. Even if he spent eight hours in the rain and caught nothing, he’d still come home with a smile.”

He also had an unusual sense of humour, remembers Dr. Harold Stein. “Someone in Arizona by the name of Bochner had passed away,” he said. “The phone at the Toronto medical office starting ringing off the hook with people asking for funeral directions. I became concerned and I called Arizona where he was staying over the winter. When I told Dr. Bochner about the phone calls, he quoted Mark Twain: ‘The rumours of my death have been greatly exaggerated’. Months later, many of his patients expressed their relief that he was alive,” said Dr. Stein. “They told him that Mrs. X had said she was at the funeral! So when Mrs. X arrived for a scheduled appointment, Dr. Bochner confronted her. She said: “I was too embarrassed to tell anyone I didn’t go to the funeral.”

Dr. Bochner’s reputation spread far beyond the confines of Toronto. In short order he had amassed an impressive list of honours, including:

Fellow of the Canadian Ophthalmological Society
Fellow and Life Member of the American Academy of Ophthalmology
Fellow of the Peruvian Ophthalmological Society
Fellow of the Israel Ophthalmological Society
Fellow of the New York Society of Clinical Ophthalmology
Fellow of the American Society for the Advancement of Science
Fellow of the Pan American Society of Ophthalmology

At Dr. Bochner's retirement dinner in 1967, he was as humble and self-effacing as he had been his entire life. "I consider myself most fortunate to have been an active participant in our hospital's evolution and progress over a period of almost 40 years," he said in his farewell address. "I have witnessed our journey from the original hope and dream to the reality which is Scarborough Hospital today."

The path toward success wasn't always smooth, he confessed, and there were many frustrations along the way. "But at no time did the Sisters of Misericordia lose their faith in me," he said. "I want to thank the Sisters for the opportunity to work with them and for all their kindnesses."

In his speech, however, he didn't mention why he was retiring. A year or so earlier, he had returned from a trip to Mexico feeling reasonably well. A few days later, however, in the operating room at Mount Sinai hospital, Dr. Harold Stein was assisting him with cataract surgery and he spotted something disturbing. "The operating room had a window as a source of light," he said. "I could tell he was jaundiced by the colour of his eyes."

Ever the professional, as soon as Dr. Stein pointed out his observation, Dr. Bochner turned over the list of remaining surgeries to Dr. Stein and immediately consulted a colleague about his condition.

The news was grim. He had contracted hepatitis, most likely in Mexico, and he was forced to spend nearly a month in hospital being treated for jaundice. Given the infectious nature of hepatitis, Dr. Bochner never returned to work. He spent his retirement at his cottage painting, fishing and playing golf. He and Charlotte wintered at the Ponderosa Ranch in Arizona. Two portraits commissioned by Mount Sinai Hospital and Scarborough Hospital still hang in those institutions as a testament to his legacy.

Dr. Harold Stein named the Bochner Eye Institute after him in his honour. Joseph Bochner remembered his father's final hours like they were yesterday: it was the end of summer on Saturday, September 7, 1968. "We'd been fishing up at the cottage all day and we were heading back, walking up the slope from the boat," he said. "Joseph had come up the night before and he was upset over something. He was a little red faced when he arrived and I remember saying to my wife, 'He doesn't look well."' With his fishing rod in his hand and a day on the water behind him, Dr. Bochner passed away in an instant. "I

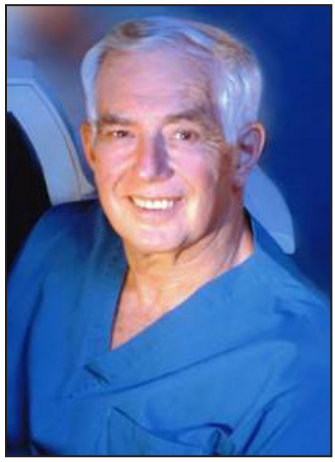
looked sideways for a second and looked back as we were walking. He had fallen with his fishing rod still in his hand. He was gone. There was nothing we could do."

Indeed, Dr. Bochner's heart had been weakening for years. "The stress of having hepatitis left his heart impaired," said Dr. Stein. "He'd had rheumatic fever as a child, so he was vulnerable." Roughly 600 people turned out at Holy Blossom Temple to mark the celebration of his life. "The late, legendary Toronto Rabbi Gunther Plaut delivered the eulogy. Dad had been his friend and they'd played golf together for years," Joseph noted. "I think it was the best eulogy I've ever heard."

A portrait of Dr. Bochner which hangs at Mount Sinai Hospital commemorating his role as Chief of Staff and Chief of Ophthalmology, 1928-1968.

Chapter Five

Dr. Harold Stein



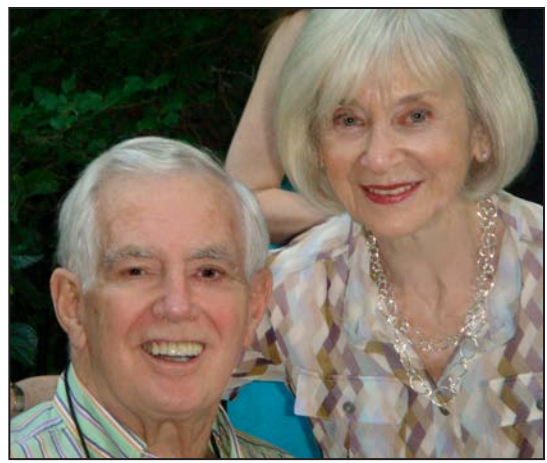
Dr. Harold Stein

There was never any question as to who would continue Dr. Max Bochner's work: It would be his protégé and son-in-law, Dr. Harold Stein, who was ready, willing and able to assume the task.

Mentored by Dr. Bochner, Dr. Stein was trained in the same clinical approach and in his behaviour toward patients, as well. Dr. Stein was part of a family where kindness, selflessness and dedication were paramount.

Born in 1929 in Niagara Falls, Ontario, Harold Stein grew up as the son of a Polish refugee who landed in Canada after World War I. Like Dr. Bochner's immigrant father, Dr. Stein's father, Louis, was initially able to speak only limited English and therefore he had few job options. As was the case with many immigrants, Louis Stein created his own job peddling goods door-to-door in the Polish and German districts whose language he shared. He was the Avon salesman of the early 1930s.

He carried dry goods on his back in small packs and if he sold out, he was forced to walk back to his base to load up on more goods. Eventually, he made enough money to buy a horse and wagon and his business grew because he could now travel further, carry more goods and sell them to more people.



Dr. Harold Stein and his wife, Anne, daughter of Dr. Max Bochner.

As his sales on the road increased, Louis Stein saved enough money to rent a small store and he began selling ladies wear. “I think my father’s only disappointment was that I didn’t join the family business,” stated Harold. “Most of his colleagues in small towns had sons who went into their father’s business and built it up. Even at my medical school graduation ceremony with cap and gown, he tried to persuade me to do the same. The fact that I didn’t was a tremendous disappointment to him.”

Instead, Dr. Harold Stein would venture on to play an integral role in a different family business − ophthalmology.

His mother, Sadie, had arrived in Canada at age nine. She became a bookkeeper and stenographer working in shorthand. “She learned English rapidly and was able to help my father so that they could eventually rent a store on the main street of Niagara Falls,” said Dr. Harold Stein. “He called it Stein’s Ladies Wear and Furs. The business became quite successful and my mother occupied herself with keeping our social life afloat. She was extremely hospitable and gracious to all of her friends and relatives.”

Harold was strong academically and was accepted by the University of Toronto in 1947. This was no easy feat as the large contingent of returning WWII veterans, whose academic careers had unfortunately been put on hold by the war, had preference in enrolment. Only twenty per cent of the intake class that year came from high schools, so the competition for a spot was intense.

Harold enrolled with the goal of becoming a doctor. He juggled the boisterous activities of his Beta Sigma Rho fraternity with his intense study schedule.

Dr. Harold Stein and his son, Dr. Raymond Stein

At first, he interned for a few months at Mount Sinai Hospital, then located on Yorkville Avenue, before moving over to its new location on University Avenue. Harold then received a fellowship at the renowned Mayo Clinic in Rochester, Minnesota, where he pursued his specialty in ophthalmology.

Harold's first child, Raymond, was born in Rochester in 1956. He would later become the second generation Stein to study ophthalmology at the Mayo clinic and to be named a Medical Director at the Bochner Eye Institute. "It was a great honor to have a residency at the famous Mayo Clinic," Dr. Stein noted. "We were taught many great things academically, but just as importantly, the Institute taught us a great deal about how to get along with and respect patients."

After his fellowship at the Mayo Clinic, Dr. Stein's next stop on his journey was Oxford, England. There, he took up a residency in plastic surgery under the celebrated academic, Professor Pomfret Kilner who, along with Archibald McIndoe and Harold Gillies, was a pioneer in restoring the faces and bodies of the numerous pilots who had suffered burns during World War II, effectively giving birth to the specialty of plastic surgery.

On completion of his fellowship at Oxford, Dr. Stein returned to Toronto and entered into practice with Dr. Bochner. It was at this time that he began preparing to take the ophthalmology exams that would lead to his obtaining his license as a surgeon.

"At that time, there were two exams, one a fellowship exam and the other a certification exam," explained Dr. Harold Stein. "I chose the more difficult fellowship exam and passed on the first try which was unique at the time as most doctors tried two or three years in a row before succeeding."

Dr. Harold Stein quickly went to work and it wasn't long before he was at the forefront of ophthalmologic technology. "In 1958, when I began practicing, I learned about the work of Dr. Otto Wichterle, a Czech physician who had just invented the soft contact lens," he said. "I realized this would be an important innovation in ophthalmology and I quickly became very interested. At the time you could not operate if a patient had a cataract in one eye because of the horrible double vision that would occur."

Through his collaboration with a contact lens lathe company in Rochester, New York, Dr. Stein developed the geometry for a soft contact lens. This was seven years before Bausch and Lomb came on the market with publicly available soft contact lenses. Dr. Stein's invention was a contact lens that could be worn over the eye after cataract surgery, eliminating double vision. "This was revolutionary as it permitted both eyes to have perfect vision," he said. "Patients from all around who had been waiting for their second cataract to 'ripen,' allowing surgery of both eyes, ventured to have the new surgical procedure."

Harold's practice in cataract surgery flourished. Young patients with a cataract in one eye as the result of injury could now benefit from the surgery. This was unique in the 1960s and, indeed, it revolutionized cataract surgery. This was long before advances such as the intraocular lens became available and it remains the technology of choice today at the Bochner Eye Institute.

Around the same time, shortly after he had passed his exams, Dr. Stein opened his first office, sharing it with a colleague. This was a satellite location to the one on Bloor St. West on what was then the "Golden Mile" on Lawrence Avenue East and Victoria Park Road. "The physician with whom I shared the office two days a week was a gynecologist. I often had to burst into his practice while he was examining patients with my own patient who had an emergency like a foreign body in the eye," Dr. Stein recalled.

Two years later, he moved into his own office close to the Scarborough General Hospital. As an ophthalmologist with plastic surgery training, he quickly found his skills in high demand. "I encountered many types of industrial accidents, car accidents, eye injuries from broken glass and metal, and alkaline burns from cement," he said. "Safety wasn't as advanced in those early industrial days. We saw a lot of sports and BB gun injuries, as well." There were facial and jaw fractures that I was called in to repair.

Harold was appointed Chief of Ophthalmology at Scarborough General Hospital, a position he held for 35 years. He proved himself unequalled in cataract surgery, corneal transplants, contact lenses, and refractive surgery.

It was perhaps fitting that he would succeed his father-in-law who had taught him so much and had dedicated himself to the Hospital. In recognition of that generational bond, Dr. Harold Stein donated a $1 million legacy gift to what is now Scarborough Hospital. The institution reciprocated by naming the patient registration area of the main campus in honour of Dr. Harold and Anne Stein.

Despite a busy schedule, he also found time to work as a professor in the University of Toronto's Faculty of Medicine and at the University of Toronto Medical School. He also wrote more than 37 books and over 200 hundred research papers for various medical journals.

As one of only two ophthalmologists in Scarborough, Dr. Stein's schedule was extremely hectic in those days. "I realized that I should accept partners so that I could have a life," he said. "I brought in Dr. Bernard Slatt and Dr. Albert Cheskes to share the load of the two offices, as well as with the emergencies. We formed a group practice known as The Scarborough Eye Associates. The concept of a group practice was unique in Toronto in the mid-1960s.

It was during this period that Dr. Harold Stein realized that an ophthalmologist's practice would run more efficiently if there was a trained assistant on staff to first meet with patients, take a patient history and list the chief symptoms for the specialist to review.

Thus, the concept of the Ophthalmic Assistant was born and later adopted by the American Association of Ophthalmology. "They asked me to develop a home study course for Ophthalmic Assistants in the United States," Dr. Stein noted.

He then partnered with Dr. Bernie Slatt to publish what is now considered a classic textbook, The Ophthalmic Assistant. By 2013, the volume was in its 9th edition, then with coauthors Dr. Raymond Stein and Dr. Melvin Freeman. The book has been so popular that it is still setting record sales, and Dr. Stein has become known as the founder of the Ophthalmic Assistant concept in North America.

Dr. Bernie Slatt and Dr. Harold Stein

Along the way, he's been honoured countless times by both his peers and the

communities he has served with such dedication. In the 1970s, Dr. Harold Stein was among the first ophthalmologists in Canada to pioneer intraocular lenses. This is a corrective lens implanted inside the eye, as opposed to a contact lens or spectacle lens which lies on the outside of the eye.

Dr. Stein worked with a company called CILCO to develop a special type of intraocular lens which became known as the Stein Lens and was mass produced for worldwide distribution. "This lens was unique in that it had little wings which 'clipped' to the iris and secured it in place during intracapsular − inside the eye − surgery," said Dr. Stein. This was considered a transitional lens and it was extremely beneficial to cataract patients. It was later replaced by more advanced lenses and became obsolete.

In the late 1980s, the Park Plaza Hotel on Bloor St. West and Avenue Road underwent massive renovations and Dr. Stein was forced to relocate his offices. "Fortunately, ten years earlier, I had purchased an old office building at

Mayor Mel Lastman at the opening of The Bochner Eye Institute.

40 Prince Arthur Avenue as a back-up and it proved to be an ideal location," he noted. "It needed some work and I offered Dr. Albert Cheskes a half-interest in the venture. After we moved from the Park Plaza to our new facility, we began thinking of a name for the institute. "At the time, it was unusual to have a medical institute such as this in the city, other than one directly associated with the university. Still, as we were university teachers, there were no objections. The Maxwell K. Bochner Eye Institute was born. "We were carrying on the work Dr. Bochner had begun in 1927, this time in a new facility, so we thought it a fitting name for our new office," stated Dr. Stein.

Chapter Six

Dr. Albert Cheskes

Dr. Albert Cheskes

Dr. Albert Cheskes's relationship with Dr. Maxwell Bochner started before he was born. "My mother, as a young woman in 1929, was a patient of Dr. Bochner," said Dr. Albert Cheskes. "Upon examination of her eyes, Dr. Bochner suspected that her eye problems were related to kidney disease. He analyzed her urine specimen himself since labs were non-existent. His suspicions proved to be correct and he immediately referred her to a specialist of the day. After she married and I was born, she recounted this story repeatedly. Dr. Bochner saved her life. If it were not for him, she would not have survived. She thought the world of him."

Therefore, it was not surprising when young Albert had difficulty in reading the blackboard; his mother consulted only Dr. Bochner. Dr. Albert commented, "I was ten years of age when he examined my eyes, and prescribed glasses. Suddenly, I could see!" I asked him, "How did you know what prescription I needed?" He replied, "When you get older, I will explain it to you!"

With glasses, the youngster could see the blackboard but also the leaves on the trees. "A new world had emerged. It is a feeling I have never forgotten. It is the same thrill that I am able to give patients today with laser surgery. I love what I do because I am helping people regain their sight. I awake every morning with the same passion. I can scarcely wait to begin my work, and help my patients. I love ophthalmology! I am an evangelist for the specialty. I really love what I do," exclaimed Dr. Albert.

Born in the original Mount Sinai Hospital on Yorkville Avenue, Dr. Cheskes grew up in the 1940's, in Toronto, a city still light years removed from the cosmopolitan city it would become. He said, "We lived near Kensington Market, at Major and College St. I remember an incident when my friends

and I were playing road hockey on a Sunday. A police officer stopped us and confiscated our hockey sticks." He shouted, "Don't you know that you are not supposed to play hockey on Sundays?" In order to reclaim his hockey stick, young Albert was compelled to go to the police station and promise never to repeat the crime.

In those years, Toronto was locked up tight on Sundays in deference to the white Anglo Saxon Protestant populace who controlled the city. Even the T. Eaton Company, the major department store of the day, drew black curtains around its windows on Sundays lest anyone be tempted to window shop.

He was yet to meet his future colleague and partner, Dr. Harold Stein, although a few years older, both shared one piece of local medical history. They were patients of the pediatrician Dr. Alan Brown, who developed at the Hospital for Sick Children, the formula for Pablum, the baby food that helped fight the crippling childhood disease of rickets. In those days, Dr. Brown assiduously prescribed bacon as part of the daily diet, especially for Jewish children. "I have no idea why bacon was the panacea of the day but he prescribed it religiously," replied Dr. Albert. While Dr. Stein's mother dutifully complied and fed her son bacon, Dr. Cheskes's mother did not go along with Dr. Brown's dictum, and instead fed young Albert "an egg a day."

Drs. Raymond Stein, Albert Cheskes, and Harold Stein

After high school, Dr. Cheskes attended the University of Toronto Medical School. His first career choice was obstetrics and gynecology, as it had been for Dr. Harold Stein. Although Dr. Cheskes enjoyed the specialty, he came to the realization that the long hours and a lack of sleep would produce an arduous lifestyle. Dr. Harold Stein influenced Dr. Cheskes's choice of ophthalmology as a life-long career. However, the precise recollection of their first encounter is lost in the mists

of time. Dr. Cheskes recalls that he was a medical student when Dr. Stein, who was practicing at the Bochner office, examined his eyes. They discussed ophthalmology. "When I was an intern at Mount Sinai Hospital, Dr. Stein was on staff. We spoke once more about ophthalmology, and I gave the specialty serious consideration because Dr. Bochner had been a great influence on my life. He was an outstanding doctor and a warm human being. Dr. Stein, who recommended the Mayo Clinic in Rochester, Minnesota as the ultimate for a residency in ophthalmology, sent a glowing letter of reference," he said. Dr. Cheskes was accepted into the program in July 1963. He and his bride of one year, Elaine (née Sacks) moved to Rochester, Minnesota.

Dr. Albert Cheskes and his wife Elaine at the reunion of his Med School Class

Dr. Stein visited Dr. Cheskes, during his second year of ophthalmology at the Mayo Clinic, and invited him to join the practice upon the completion of his studies. "Dr. Stein was swept off his feet with a tremendous workload. He neither had the time for a social life nor the opportunity to write his numerous books, and to publish papers. He could not manage a downtown office, a Scarborough office, and an increasing number of emergencies, day and night, at the Scarborough General Hospital. During this period, Scarborough was expanding with non-stop construction, and there was a multitude of eye injuries. He scarcely had the time to breathe, recalled Dr. Albert.

Dr. Cheskes spent three years at the Mayo Clinic in Rochester, Minnesota, and returned to Toronto in 1966. He earned a Master of Science Degree from the University of Minnesota for his corneal research and received his degree as a Fellow of the Royal College of Physicians and Surgeons of Canada.

Dr. Cheskes said, "Dr. Stein and I kept in touch. Upon my return to Toronto in July 1966, Dr. Bochner was planning to retire due to an illness of hepatitis that

he contracted in Mexico. He drafted a short lease agreement, and I joined his practice. Dr. Bernard Slatt joined the Scarborough practice. Dr. Bochner was my ophthalmologist for many years and I observed him both as a patient and as a doctor. I learned considerable skills from him by osmosis. He was not only an outstanding and knowledgeable physician with technical expertise, but he catered to his patients' souls. He was loved by all." When Dr. Cheskes joined Dr. Bochner's practice, he carried the torch, and continued the traditions of his mentor where his patients' needs came first and foremost.

Dr. Albert Cheskes working with a patient at the Bochner Eye Institute

By this time, Dr. Albert Cheskes was well on his way to establish his own career. He witnessed the first experiments with keratomileusis (an early form of corneal refractive surgery that was introduced by Dr. Joaquin Barraquer in Bogota, Columbia) in the early 1960's, and would be among the first surgeons in Canada, together with Drs. Harold and Raymond Stein, to perform laser vision correction procedures.

Dr. Cheskes was appointed Chief of Ophthalmology at Centenary Health Centre in Scarborough in 1990, and held Staff positions at Sunnybrook Hospital, Scarborough General Hospital, St. Michael's Hospital, and the now defunct Central Hospital.

In addition, Dr. Cheskes was Chairman of the prestigious Eye Safety Committee of the Canadian Ophthalmological Society, for many years, and a strong advocate for public safety in ophthalmology. He worked closely with Dr. Tom Pashby in promoting eye safety in all sports.

After a lifetime in ophthalmology, he is as passionate today about his profession as he was when he first began his career. Dr. Albert said, "Harold (Dr. Stein) and I meshed from the beginning, and to this day, we still throw ideas around. We are always brainstorming and have great lines of communication."

"In 1988, when the Park Plaza (Park Hyatt) was undertaking major renovations, we were informed that our lease would be terminated, and we would be required to vacate the premises. We loved our office in the hotel. Our patients loved the office in the hotel, since they were served, twice daily, tea and cookies that the management provided. However, when we were notified that the lights and water would be shut off, we knew we had to move," said Dr. Cheskes.

Ten years earlier, Dr. Stein bought a property on Prince Arthur Avenue, as an investment and as a contingency for the non-renewal of the Park Plaza lease. After exploring several possibilities for a new site for our office, we decided that 40 Prince Arthur Avenue was the perfect location, although major renovations would be needed. "He offered me (Dr. Cheskes) a half interest in the property and we went into partnership. We knew unequivocally that the Eye Clinic should be named after Dr. Maxwell Bochner, this wonderful pioneer of ophthalmology, who touched both our lives so deeply."

Dr. Harold Stein and Dr. Albert Cheskes

Chapter Seven

Dr. Raymond Stein

Dr. Raymond Stein

As the son and grandson of two prominent ophthalmologists, Dr. Harold Stein and Dr. Maxwell Bochner, icons in their chosen field, it might have been assumed that Ray Stein would likewise enter the field. As he tells it, though, at first he wanted nothing to do with medicine.

In fact, for a while it looked like he would become a tennis professional with a couple of international championships under his belt, perhaps Wimbledon or the U.S. Open. Indeed, this was no idle dream. He played tennis so well that he earned a scholarship at the University of Pennsylvania in 1975-1977 where he competed against other Ivy League players from Princeton and Harvard Universities. This was on the heels of representing Canada at international competitions where he ranked as one of the top four Ontario juniors and top ten national players.

Of course, it wasn't all love and grand slams at university for Ray. While enrolled at the prestigious Wharton School of Business, about as far as one can get from medical school, his workload was intense. Between tennis practice and competitions, there were more than a few lectures about economics, supply chain management and accounting.

Dr. Stein was extremely accomplished in the classroom, achieving the Dean's List with Distinction in both his years there, as well as being designated a Benjamin Franklin Scholar − an honour bestowed on only the top two per cent of students.

His high school career had been similarly impressive. He was a standout athletically and academically, graduating six months ahead of schedule from Jarvis Collegiate, the same school as his grandfather, Dr. Max Bochner, had attended.

Prior to college, medicine was not top of mind for him. In fact, he used the time to escape to legendary champion John Newcombe's Tennis Ranch in Texas to join the professional teaching staff before heading back to university.

"In high school I was so certain that I wanted nothing to do with medicine," he laughed. "I was very interested in economics and business so I went to Wharton. It was wonderful − what a great school. In fact, one of my professors had won the Nobel Prize in economics. I was doing well on my exams, but something was missing. I found that economics was an inexact science and that bothered me. If you asked twenty economists a question, you'd get twenty different answers."

As frustration crept in, Dr. Stein looked around at his friends, many of whom were in pre-med. They were struggling but they were engaged. "I called home and told my mom and dad that I wanted to go to medical school," recalled Stein. There was dead silence on the line for about a minute. The final reaction, as one might imagine, was joyful and with his parents' blessing, his educational path changed direction. "I started loading up on science classes and cramming as much as I could into my second year," he recounted.

The following year he transferred to McMaster University in Hamilton, Ontario, to finish his B.A. He was then accepted into the University of Toronto's medical school, the same institution his father had attended.

A 19-year-old Ray Stein teaching U.S. Figure Skating Champion, JoJo Starbuck the finer points of tennis.

Dr. Stein's tennis career was also progressing well. During his summers off he ran tennis clinics throughout Louisiana, Texas, Oklahoma and New Mexico and pushed his ranking to fourth overall in Ontario Men's Open Tennis while helping the University of Toronto win the provincial college championship.

In 1982, following medical school, Stein followed his father's footsteps once again – this time to Mount Sinai Hospital where he served a flexible internship that involved working around the clock. In medicine he found a passion and a cause that was lacking in his business studies. "Only in this field can you live out your passion for life by treating male and female patients, children and the elderly," he said.

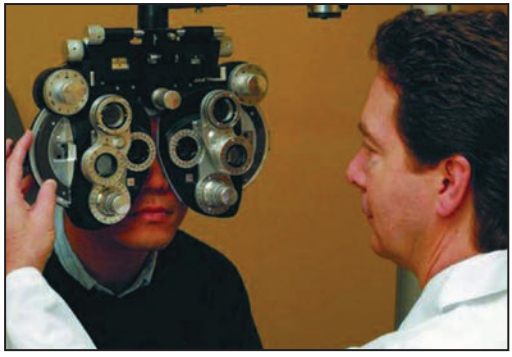
It was at the end of his year-long residency at Mount Sinai that Dr. Stein realized ophthalmology was his calling. "One of the things I like about ophthalmology is that you really don't have to order a lot of tests to determine a diagnosis," he said. "In that way it's not like internal medicine."

Indeed, his uncle Joseph Bochner noted, Dr. Ray Stein is like his grandfather in many ways. "Even in his looks, voice and stature, everything reminds me of my father," he said.

There probably wasn't a lot of debate about where Ray would go to pursue his chosen specialty. It was the Mayo Clinic, not because his father attended there or because Dr. Albert Cheskes did as well. Rather, this was his chosen place because he was literally born into it. He was born to proud parents Harold and Anne Stein, in 1956, the year his father started his residency at the world famous institution. He'd actually grown up among some of the most highly educated and skilled eye surgeons and ophthalmologists in the world.

"My father never pushed me or suggested ophthalmology as a specialization," he said. "But between my grandfather − who died when I was 13 and who I wish I'd gotten to know better − and my father, I guess the love of medicine in general and ophthalmology, in particular, really rubbed off," he explained.

After three years at the Mayo Clinic, Ray Stein was awarded a Corneal Fellowship at Philadelphia's prestigious Wills Eye Hospital.



Dr. Raymond Stein with a patient.

Upon returning to Toronto in 1987, he assumed a position as staff ophthalmologist at what was then Scarborough General Hospital and two years later, a similar position at Mount Sinai Hospital. That same year, he started lecturing at the University of Toronto where he became an Associate Professor of Ophthalmology.

Dr. Raymond Stein with his wife Nancy Viner

Dr. Stein even found time to act as the staff ophthalmologist at Toronto's Central Hospital before becoming Chief of Ophthalmology at Scarborough Hospital, again continuing in the family tradition. Along the way, he married Nancy Viner and had three children, Rebecca, Emma and Maxwell, the latter named for his much loved and respected grandfather, Dr. Maxwell Bochner. Ray's eldest daughter, Rebecca, graduated from medical school in July 2014.

Dr. Rebecca Stein on graduation day from medical school in England in 2014

Dr. Rebecca Stein was accepted in 2015 to an Ophthalmology residency at the University of Toronto. She will be a fourth-generation ophthalmologist, a first in North America, and she will be following in the footsteps of her great grandfather Dr. Maxwell Bochner, grandfather Dr. Harold Stein, and father Dr. Raymond Stein.

Dr. Raymond Stein soon became one of Canada's leading authorities on corneal transplants and refractive surgery. He has performed more than 100,000 eye surgeries and has been honoured with a host of prestigious awards from many laudable institutions, such as the American Academy of Ophthalmology and the Contact Lens Association of Ophthalmologists. At the same time, he has served as President of the Canadian Society of Cataract and Refractive Surgery (CSCRS).

Dr. Stein is the Editor of *Clinical and Surgical Ophthalmology Journal*, and he has published countless journal and magazine articles and books. Despite all of these honours and accomplishments, working with Drs. Albert and

Jordan Cheskes at the Bochner Eye Institute and continuing his father's work remains his passion. This is perhaps because his grandfather's shadow looms large every day. "Some of our medical charts go back 85 years to when they were hand written by my grandfather, my father and Dr. Cheskes, so in a way I'm still working with my grandfather," said Dr. Stein.

Dr. Raymond Stein uses a laser to correct a patient's vision

His working relationship with his staff and colleagues couldn't be more collegial. "It's wonderful," he said. "We're all professionals and we all have our own practices, so we're not in competition with each other. We're like family. We see each other at life events like weddings, funerals and holidays. We often discuss cases over lunch."

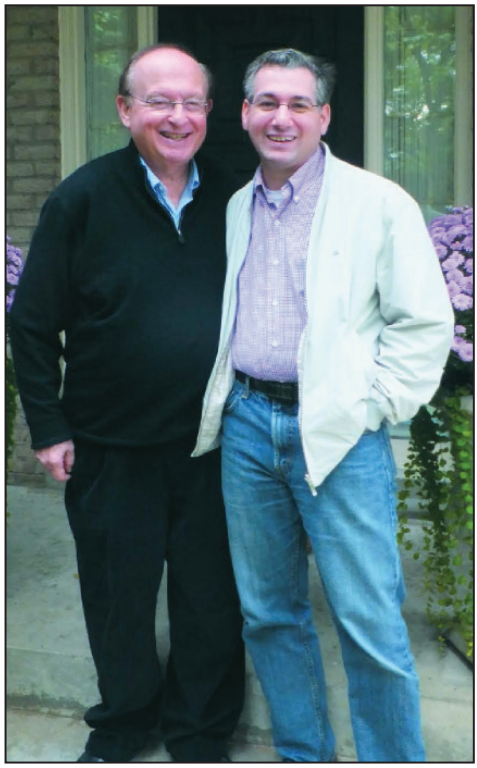
Together, they all share a common goal to improve their patients' lives. Both the Wharton School and the Wills Eye Institute prepared Dr. Stein for his chosen role in life as an eye surgeon.

"A medical practice is also a business, so the family connection has really helped with the marketing and managing of my business affairs," he commented.

Dr. Max Bochner with his grandson, the future Dr. Raymond Stein.

Chapter Eight

Dr. Jordan Cheskes



Dr. Albert and Jordan Cheskes

As a young boy, Jordan Cheskes remembers tagging along with his Dad, Dr. Albert Cheskes, as he did his Saturday morning rounds of patients at the Scarborough Centenary Hospital. More recently, his own son William has been tagging along as Dr. Jordan does his rounds as Staff Ophthalmologist at the same hospital. Unlike his colleague, Dr. Raymond Stein, Dr. Jordan Cheskes always knew that the practice of medicine would be his choice of careers, although, initially he was not considering ophthalmology. "I knew that the profession of medicine provided care to help people, and I saw the enormous amount of enjoyment that my Dad received. I suppose it just naturally rubbed off on me," he said. "I remember making rounds with my Dad and saw the patients' happiness after successful cataract surgery. Now they could see. In the 1980's, the patient remained in the hospital for several days following the surgery. My Dad did not consider the daily practice of ophthalmology as work."

The Cheskes home is enriched with non-medical activities. One of Dr. Jordan's great loves is playing the guitar and harmonica. "At fifteen, I picked up the guitar when my father gave it up. It keeps me sane," he said. Dr. Cheskes, also plays a little harmonica, but confesses that his singing "isn't such that anyone would want to hear me." He is a fan of blues and jazz, and is an admirer of

the Texas blues player, the legendary Steve Ray Vaughan, and the jazz great Barney Kessel. He has organized, for many years, the University of Toronto, Department of Ophthalmology's annual talent show. However, his intense work schedule does not permit the pursuit of many leisure activities, and he misses those years when he played baseball and basketball. In addition, two very active young sons occupy most of his free time.

Ultimately, his path followed a parallel direction with his colleagues at the Bochner Eye Institute. After Dr. Jordan graduated from York Mills Collegiate, he was accepted into medicine at the University of Toronto, where he completed his training.

His interest in ophthalmology was stimulated during this residency in emergency medicine. He examined many patients with detached retinas, a condition often triggered by a blow to the head or the eye. The retina is a layer of light sensitive cells that receive light that has passed through the lens of the eye and transmits the resulting image through the optical nerve to the brain where it is rendered as vision. The retina allows us to perceive the world. There are various degrees of retinal disorders. Some are caused by disease, others by heredity. A number of different treatment options are available, such as surgery or the use of drug therapy. In addition, his father's love of ophthalmology inspired in young Jordan, an interest to pursue this specialty as a life-long career.

Dr. Jordan completed a five-year fellowship in ophthalmology at the Mayo Clinic. "It was most exciting to train with the giants in the field. The education through their thought processes was both invaluable and fascinating. I could sense their wealth of experience. Although I would not say that they had seen it all, it was quite close. As a result, it was a fantastic opportunity to work with interesting people and face some great challenges," he recalls. Dr. Jordan also received his degree from the Royal College of Physicians and Surgeons of Canada.

Today, Dr. Jordan is one of the leading authorities and diagnosticians for medical and surgical retinal issues. He is the Division Head of Ophthalmology at the Rouge Valley Health System, and serves as the Chief of the Retinal Division for both the Scarborough Eye Associates and the Bochner Eye Institute. In addition, he is a Lecturer of Ophthalmology at the University of Toronto.

The Bochner Eye Institute is a most unique ophthalmological practice as it includes two fathers and two sons – Dr. Harold Stein, his son Dr. Raymond Stein, and Dr. Albert Cheskes, his son Dr. Jordan Cheskes. They are all Mayo Clinic trained. In addition, there is a generational connection to Dr. Maxwell Bochner. He is the father-in-law of Dr. Harold Stein, and grandfather of Dr. Raymond Stein. Furthermore, Dr. Albert Cheskes's mother was a patient of Dr. Bochner and she credits him with saving her life. "It would have been a privilege to meet and work with him. On the other hand, Dr. Raymond Stein played an integral role in my personal life. Ray and his wife Nancy introduced me to my wife Samantha, and I am forever grateful. We have two beautiful sons," comments Dr. Jordan.

Dr. Jordan, together with his colleague, Dr. Raymond Stein of the Bochner Eye Institute enjoy an excellent working relationship since it is collaborative and not competitive. Primarily, they provide quality care to their patients and meticulously follow their outcome. Dr. Jordan is as passionate about ophthalmology as his father, Dr. Albert Cheskes and his colleagues, Drs. Stein. He says that it is one of the few specialties where he can make a difference in people's lives, although some of his patients do not get the happy ending that they would desire. "I treat many patients who are visually impaired or on the brink of impairment. My role is to attempt to prevent blindness. However, in some cases when blindness occurs, I am very sensitive to their fears and worries, and help them to understand that the limitations that they perceive may not be actualized. It is critical to remind patients that positive results may be ascertained. They should realize that life is to be enjoyed and experienced despite visual impairment," he said. Dr. Jordan follows the teachings of Dr. Bochner who always offered hope and belief to this patients. "Without hope, you are hopeless doctor," states Dr. Cheskes.

"One of the joys, perhaps the driving factor in my passion to practice is the knowledge that I will make a positive difference to my patients' vision. In many other fields of medicine physicians are dealing with loss, and there is no happy side. Fortunately, in ophthalmology, there are many positives, and generally, patients are happy with the outcome. It is that ability to give back, that is also integrated in the Bochner Eye Institute's success. It is not only helping patients with their vision, but also with the quality of their life," concludes Dr. Jordan Cheskes.

Chapter Nine

The Mayo Clinic Connection

Dr. Will Mayo and Dr. Charlie Mayo, co-founders of The Mayo Clinic.

The Mayo Clinic's reputation in North America, indeed the world, is unparallelled. The fact that all four of the Bochner Eye Institute surgeons completed their fellowship in ophthalmology there is a testament to the institution and to their credentials.

The Rochester, Minnesota institution is an iconic hub of research, education and medicine that has propelled the entire spectrum of medical specialties forward, among them ophthalmology.

Perhaps it's not surprising that the DNA of the Mayo Clinic infuses The Bochner Eye Institute. Dr. William Worrall Mayo, who established his practice in Rochester in 1865 after the end of the American Civil War, also worked with his two sons, William and Charles. Dr. Charles Mayo was the clinic's first Director of Ophthalmology until 1908.

Charles's sons, Drs. Charles William Mayo and Joseph Graham Mayo, worked at the clinic while another grandson, Charles Horace Mayo II, served his residency there.

The legacy of this founding family of physicians is extraordinary. The Mayo Clinic is seen as the "gold standard" of medical institutions for patients with extremely rare diseases or complications because of its deep commitment to advanced research and to bringing clinical findings to the reality of clinical care.

More than one million patients from the United States and roughly 150 other countries pass through the doors of the Mayo Clinic annually. The primary reason for this is simple: the needs of the patient always come first.

Unlike most American hospitals, the Mayo Clinic is a non-profit institution. Its doctors are not encouraged to increase their income by seeing as many patients as quickly as possible. The result is a care-based, patient-centric approach that is not commonly seen in other hospitals.

Today, the Mayo Clinic has three locations: Rochester, Minnesota; Jacksonville, Florida; and Scottsdale/Phoenix, Arizona – along with regional care centers through the Upper Midwest. It boasts a total of approximately 60,000 employees, including 4,000 physicians.

Dr. Harold Stein was the first of the group at The Bochner to study at the Mayo Clinic and he recalls his years there, from 1953 to 1957, with fondness. "Little did Anne and I realize how cold Rochester is in the winter," he laughed. "Rochester is just north of Toronto and the temperature is many degrees colder. We were unprepared for the frigid temperatures and we soon learned that we had to buy the thickest snowsuits and the warmest gloves and earmuffs to survive the winters there."

In those early years there were no luxury accommodations − far from it. The Steins lived in World War II-era Quonset huts with just a floor heater to keep them warm. "It looked like an igloo made of wood," he remarked.

The Mayo Clinic, circa 1955

Whenever Dr. Bochner came to visit the young family, Dr. Stein arranged a meeting for his father-in-law with all of the residents in order to offer his insights on clinical practice. "All of the residents found this to be one of the highlights of the year. For his part, Dr. Bochner was so stimulated by it that he returned again to share his views on management and patient care," Dr. Stein noted.

"It was a great honour to serve a residency at the famous Mayo Clinic. We were taught many great things academically but, just as importantly, we were also taught a great deal about how to get along with patients and how to respect them. We were able to offer services, and in some cases diagnose and cure diseases for which cares could not be found in patients' hometowns. These were very formative years for me as they highlighted the importance of learning the art of treating patients," said Dr. Stein.

It was Dr. Stein's experience at the Mayo Clinic that helped convince Dr. Albert Cheskes that he, too, should seek a post there when he realized obstetrics wasn't the best specialty for him.

"I applied to other places and was accepted by them, but in the end I chose the Mayo Clinic," said Dr. Albert Cheskes. He noted that when he arrived there in 1963 just after he got married, the Quonset huts were gone, replaced by comfortable, modern apartment buildings. "I really loved it there. When you train at the Mayo you learn that the patient comes first. You don't keep a patient waiting for care."

"We've taken the same attitude here at the Bochner. We follow up on the day of surgery and we have a special hotline for patients to call if they have a problem," added Dr. Stein.

Something else he learned from Dr. Bochner was the concept of caring for the whole patient. "Even if a person was blind, you'd bring them back once a year because something might have changed in medicine and science, perhaps allowing you to now treat them. An example of this is that Dr. Jordan Cheskes is treating macular degeneration patients with drugs like Avastin, which is traditionally used in cancer treatment, and Lucentis. Dr. Bochner taught us that we don't just treat the eyes, we also treat the soul.

Dr. Ray Stein entered the world during his father's fellowship at the Mayo Clinic and was exposed to a cadre of accomplished doctors who were also fellows there.

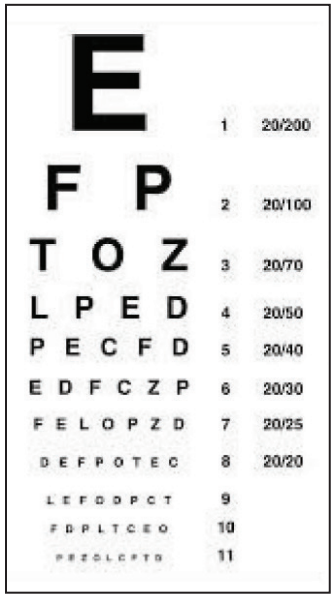
"It's funny, one of the first patients I saw at the Mayo had been seen by my father years before and they remembered the event," he remarked. "They came in, looked at me and said, 'Yes, you saw me years ago but you haven't aged at all!'"

He recalled the Mayo Clinic as a humbling place where egos were parked at the door and patients were paramount. “It’s in the Midwest. People are not as arrogant there as they are in some big cities. There’s a real sense of life balance there,” Dr. Ray Stein related. “At other places, you see rare cases which you might see once in a lifetime in practice. But at the Mayo you’ll see five a week because it’s a place where people with uncommon diseases and issues travel to from all over.”

Dr. Jordan Cheskes also remembers his Mayo Clinic years fondly. “For me, the focus was always the quality of medicine,” he said. “It’s unique. I always said it would be the equivalent of a lawyer articling at the Supreme Court. It’s such a place of vital authority. When you get a diagnosis from the Mayo Clinic it’s very hard to shake it off or contest it. The doctors there are like great Supreme Court judges in the way their minds work and how they approach certain problems. As a young physician dealing with the challenge of seeing patients who journey there from all over the world searching for answers, it really was very beneficial in my development as a doctor.”

Chapter Ten

Pioneering Refractive Surgery



Is your eyeball too long or too short? Or is it just right? Some people are born with 20/20 vision − or in Snellen measurement, 6/6 – which refers to a Dutch eye doctor Hermann Snellen, who created a particular way of expressing a patient's visual acuity or how well their eyes focus on objects and at what distances.

The term 20/20 means that a patient can read Snellen's standard eye chart − the one with which most people are familiar with the large letters at the top − perfectly, at a distance of 20 feet. This is what is deemed "normal vision".

Another system, the Jaeger, measures your near vision – that is, how close you can be to something and read it. Together they're part of a series of tests and checks performed in a complete eye exam which helps determine if you are farsighted – able to see things at a distance but struggle to read a restaurant menu or nearsighted, comfortably reading a book held close to your eyes but unable to see a TV screen clearly from six or eight feet away.

This distortion in vision is common and occurs for a variety of reasons, most likely because the light passing through the cornea, lens, and iris isn't aligning perfectly with the retina – that light sensitive collection of cells at the back of the eyeball which link through the optic nerve to the brain and allow us to see.

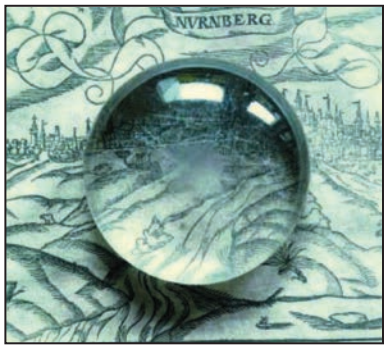
There are many different causes for this, from genetics to age to reaction to some drugs and the usual course of correction is prescription eyeglasses or contact lenses or in some cases, laser surgery.

People who are farsighted have "shortened" eyeballs so that the light passing through the lens of the eye actually focuses at an imaginary point past the retina. This is called hypermetropia.

Those who are nearsighted have elongated eyes that are too long, causing that light to converge into focus at a point in front of the retina and it is called myopia.

These are examples of refractive errors. Others include astigmatism, which is a problem with the curve of the eye which upsets the light focusing on the retina; and presbyopia in which it becomes harder to focus on close objects as you get older, usually requiring bifocal glasses or multi-focal contact lenses.

Using a curved piece of glass or even a glass filled with water dates back to ancient Egypt and the Roman Empire. The first recognizable glasses were made in Italy around 1286. While Leonardo Da Vinci is credited with coming up with the idea of contact lenses in about 1508, the first hand blown glass lenses didn't go into use until the late 1800s, and not into widespread use until the invention of soft lenses and gas-permeable hard lenses in the 1960s and 1970s.



Old reading type magnifier

Still, for all their success, eyeglasses and contact lenses have drawbacks. They get lost, they break and in the case of contact lenses they can lead to eye injuries from scratches and help trigger infections if not properly handled and cleaned.

The alternative is refractive surgery, a technique which physically alters the surface of the eye and changes the point of focus to better align it with the retina.

Laser refractive surgery, as the name suggests, is a procedure that uses an intense and precisely controlled beam of light – a laser – to microscopically remove corneal tissue under rigorously controlled conditions. It has become a popular surgical choice since it was first introduced in the late 1980s.

The procedure was developed by building on the work of Spanish ophthalmologist José Barraquer, who used a scalpel to cut into the cornea in order to alter its shape at his clinic in Bogota, Colombia.

Interestingly, Dr. Barraquer was a third generation ophthalmologic surgeon, as well. His grandfather was Dr. Jose Antonio Barraquer Roviralta (1852-1924) and his father was Ignacio Barraquer (1884 -1965), the Spanish ophthalmologist who contributed many advancements to cataract surgery. In addition, he invented many surgical instruments that bear his name and are still being used today.

His younger son, Joaquin Barraquer, also became an eye surgeon of renown, and two more Barraquers followed along the same path to practice ophthalmology at the Barraquer Clinic.

Dr. Harold Stein recalls meeting Dr. Joaquin Barraquer in the late 1960s: "I spent time visiting and learning from other surgeons all over the world. I visited Barcelona and went to the Barraquer Clinic to observe Joaquin Barraquer performing eye surgery," he recalled. "It was a magical moment."

Dr. Stein made a point of visiting another pioneering doctor on that trip, Dr. Alfredo Arruga. "Dr. Arruga was a legend in his own time. He had written numerous textbooks, as well as having his name attached to numerous instruments he had developed," he stated. "However, at that point, he was over 75 years old and the younger Barraquer had surpassed him in surgery. No one went to visit him anymore. He was flattered that I came!"

On arrival, Dr. Stein was ushered directly into the operating room by the receptionist. "I was shocked to enter an operating room in street clothes," he said. "Dr. Arruga stopped in the middle of the operation, thrust out his ungloved hand and shook mine, then went straight back to the retinal surgery he was performing without even dipping his hands into alcohol for sterility. I wasn't sure if he had heard of the germ theory, but it was state-of-the-art at the time. There were no gloves and no antiseptics. I'm glad things have changed!"

Dr. José Barraquer's pioneering work was followed by that of Russian scientist Svyatoslav Fyodorov (1920-2000). Dr. Harold Stein recalls meeting with him, too.

"Dr. Fyodorov was the first surgeon to perfect radial keratotomy, or RK, a surgical procedure that corrects nearsightedness," noted Dr. Harold Stein. The procedure involves making a series of cuts halfway into the cornea to change its shape and improve focus.

Dr. Stein meets Dr. Svyatoslav Fyodorov at a conference

"The story he recounts is the stuff of medical myth. A little boy gets into a fight and breaks his glasses, cutting his eye. All of a sudden, he can see better. The little boy's doctor, Fyodorov, asks himself, 'If accidental cuts can improve vision, what could precision cuts do?'"

This recounting of the origin of the technique may or may not be true, remarked Dr. Stein. "It's more likely that as a creative salesman, Dr. Fyodorov probably read about botched RK attempts in the medical literature and got to work," he laughed. Fyodorov, who also pioneered one of the first successful artificial lens implants, spent half a dozen years experimenting with radial keratotomy.

"He was a remarkable man and a celebrity in his own country. More uniquely, he was a double amputee, having lost both his legs," said Dr. Stein. In addition, he noted that Dr. Fyodorov has been entered into the Hall of Fame. "I saw him in California walking on his hands around an Olympic-size swimming pool. He even founded his own political party and made a run for the Russian presidency in 1996, losing to Boris Yeltsin. Tragically, he died in a helicopter crash in 2000. He was 72 years old. Some people said he was becoming too popular and that his death was a political assassination. We'll never know!"

The gravity of working with a scalpel on the human eye meant that everything depended on the surgeon's abilities, including the steadiness of his hand. "It's like having ten wet tissues to cut through, but only cutting down to the first two layers with the knife," explained Dr. Stein.

"It's quite a skill because if you cut too deep you'll perforate the eye and if you cut too shallow, you won't have any effect." He said surgeons would practice on wet tissues and anything at hand, like tangerines or, in his case, on human eyeballs donated by an eye bank. "These were eyes which were no longer suitable for transplants and so they were given to surgeons to practice techniques," explained Dr. Stein. "I kept a jar of eyeballs in the fridge at home. I think Ray (his son, Dr. Raymond Stein) actually wrote a story for his elementary school about going to get a banana and finding a jar full of eyes in the refrigerator."

In terms of the surgical procedure, as one might expect, the precision of the blade is critical and a standard scalpel is not adequate. "We used diamond blade scalpels which at that time cost $2,500 each and three or four were needed because they got dull quickly," said Dr. Harold Stein.

He was a pioneer in this technology until lasers came into use. The laser is a perfect precision tool that could be programmed to cut at micron accuracy. By the late 1960s, Dr. Mani Lal Bhaumik was developing a carbon-dioxide laser at the University of California, although it was initially designed to etch circuits on silicon chips for the burgeoning electronics and computer sectors.

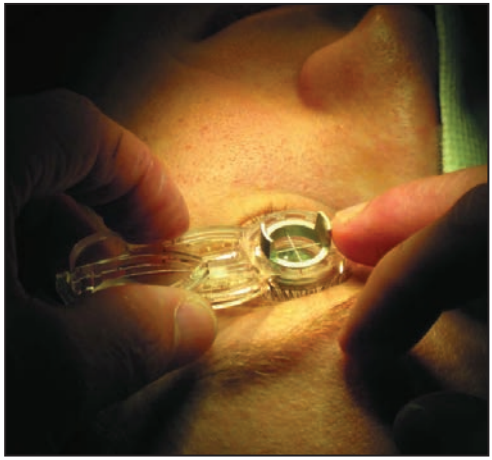
In 1973, Dr. Bhaumik unveiled and patented his excimer laser, but it wasn't until 1980 that Rangaswamy Srinivasan at the IBM Research laboratory designed and developed an ultraviolet excimer laser that was much more precise and caused no collateral damage to surrounding tissue.

Five years later, the first medical articles documenting laser radial keratotomy (surgery to correct nearsightedness) were published by Dr. Stephen Trokel, who performed the first such surgery in 1987.

As the Bochner Eye Institute had long established itself as a forerunner of medical technology in ophthalmology, it wasn't too long before Dr. Harold Stein, Dr. Albert Cheskes and Dr. Ray Stein began researching the type of laser system that would best suit their patients' needs.

The three physicians travelled to clinics and hospitals across North America to witness firsthand what kind of results were possible, and they came away impressed. "A lot was being written about laser and LASIK surgery," said Dr. Stein. "We explored it and we wanted to buy the best laser available at the time."

Dr. Cheskes recalled being excited by the new technology after seeing it firsthand. “I thought to myself that this was really going to change our world.”



Creating the flap during a LASIK procedure

Buying the machine, however, was the least of their challenges. Getting it installed was quite an ordeal and it turned out that they had to dig out their office’s basement and knock out a wall to be able to fit the equipment into the building.

“We hit Taddle Creek just under the building, so we were forced to dig down another 40 feet. The city made us insert a steel plate so that a fire truck could rest on it if need be,” recalled Dr. Stein. “It cost $750,000 for the machine and $180,000 to install it. For that amount we could have bought the building next door. It was crazy, but that’s what we did. It was a huge leap of faith but we had to try it and see how it went.”

It was a revolutionary idea at the time but it proved to be the right decision. “Eventually, of course, we did get it in there and it was exceptionally successful. We even had the inventor, Dr. Stephen Trokel, come and train us,” said Dr. Stein.

The results were immediately beyond expectations. “So many happy people!” says Dr. Albert Cheskes. “We were inundated. People were coming from all over, including from the United States, to undergo this procedure.”

The Bochner Eye Institute offers many types of refractive surgical procedures: LASIK and PRK, along with Refractive Lens Exchange (RLE) − in which the natural lens of the eye is replaced with an artificial lens − Implantable Contact Lens (ICL), in which a tiny contact lens is inserted inside the eye and corneal inlays for treatment of presbyopia.

There are differences between LASIK and PRK, although they are similar in that they are a laser procedure for correction of myopia (nearsightedness), hyperopia (farsightedness) and astigmatism.

All refractive surgery procedures require a series of pre-operative examinations, testing and preparation but if all indications are good and the patient is a candidate for a procedure the process is somewhat similar.

Patients are asked to stop wearing their contact lenses for a period of time before the surgery date so that the corneal curvature relaxes back into its LASIK (laser assisted in situ keratomileusis) usually involves removing only about 50 microns of tissue – about the thickness of a human hair – within the cornea to achieve the proper amount of correction.

Initially, a corneal flap is created with a femtosecond laser, which uses tiny, rapid pulses of laser light. The corneal flap is then folded back out of the way.

Next, cool rays of light from the Excimer Laser reshaped the inner tissue of the cornea with up to .25 microns of accuracy. A single micron, by the way, a micrometer, is one thousandth of a millimeter and the laser can operate at up to a 4000th of a millimetre.

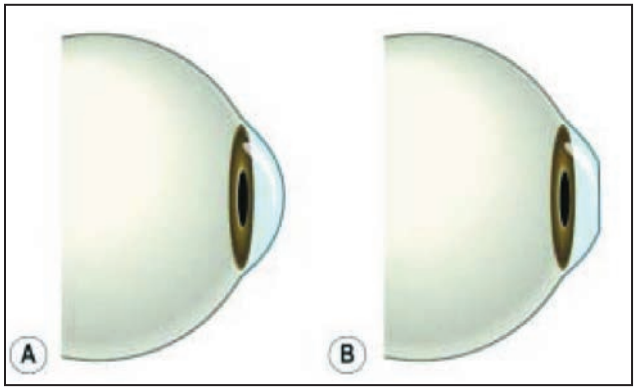
The corneal flap, which was made initially, is then folded back into place and the eye is allowed to heal naturally without stitches. The actual procedure with the laser takes only an instant, just 10 to 20 seconds.

One of the big advances in recent years has been the introduction of newer technology which is not only even more precise, but now allows even more customized treatment of each patient's unique eyes.

The customized treatment allows for a higher percentage of patients to achieve 20/20 vision with improved quality. The Bochner Eye Institute was among the first in the world to add the Allegretto Wave Excimer Laser System in 2006. It is an integrated technology that first maps the unique characteristics of each eye. This data is then loaded into the laser process and guides the beam even more precisely. The Allegretto Wave cannot only significantly improve myopia, hyperopia or astigmatism but can also improve your quality of vision such as contrast, sharpness and perception.

PRK – photorefractive keratectomy – is similar to LASIK but instead of creating a protective flap on the cornea in the first phase, the surface cells of the cornea, the corneal epithelium, are removed.

The excimer laser is then applied to reshape the cornea and correct vision. Visual outcomes are equally as impressive as with LASIK, however, the healing time tends to be longer.



(A) Normal cornea;
(B) After laser treatment

The choice of LASIK over PRK is based on each patient's unique needs and eye anatomy.

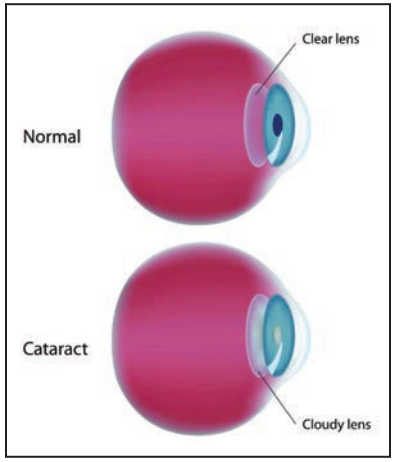
Some people have thinner corneas making creation of the flap in LASIK more challenging.

The laser refractive surgery and the technology on which it is based continue to advance. The Bochner Eye Institute will continue to investigate, research and acquire new technology to remain on the forefront of this specialty.

Regardless of the technology, however, Dr. Bochner would have reminded his colleagues that treating the whole patient was the most important thing and that all the technology in the world should never change the human aspect of medicine.

Chapter Eleven

Ahead of the Curve in Cataract Surgery and Other Eye Procedures



When Dr. Max Bochner first opened his practice in 1929 at what would become the Bochner Eye Institute, a diagnosis of cataracts would condemn a patient to virtual blindness − at least initially.

It was a sad state of affairs. A cataract is a degeneration of the eye's natural lens in which it slowly clouds over. Some patients report it as looking through wax paper or smudged glasses; colours change, and contrast and sharpness fade.

Most often cataracts are related to the aging process, but they can also be triggered by genetics or by exposure to certain environmental substances.

The symptoms and causes of cataracts haven't changed a lot since 1929 but the treatment and the technology certainly has, although it is still designed to do the same thing: remove the clouded lens from the eye.

The big change is the ways in which surgeons can restore sight and replace the function of the damaged and extracted lens though the implantation of artificial lenses.

Around the time Dr. Bochner was studying at the Wills Institute and opening his practice, the standard treatment was to wait until the suffering patient was almost blind from the cataracts. They can affect both eyes, but may be worse in one eye than the other, allowing some patients to compensate for a while until both eyes degenerate to the point that they require surgical intervention.

The practice at the time was to allow the cataract to "ripen" before they extracted it. In some ways the best technology and surgical techniques weren't

far removed from those described by 5th century B.C. Sanskrit manuscripts. A sharpened sea shell was used to break the lens free and knock it back into the vitreous cavity of the eye itself.

Forty years later, the Persians, Greeks and Egyptians were using bronze instruments to break up the lenses into small particles to make it easier for them to be absorbed into the eye.

If the patient survived the shock, pain and risk of infection, the best they could hope for was blurry vision for the balance of their lives, as eyeglasses were not introduced for another 1,000 or so years.

This technique was called "couching" and it was the state-of-the-art for cataract treatment over the next 1,700 years, until the mid-1700s, when French physician Jacques Daviel invented a more sophisticated process.

In 1753, Jamaican-born physician, surgeon and ophthalmologist Samuel Sharp improved on the technique after visiting and observing it in Paris. His idea was to make two cuts with a small scalpel then push down with his thumb and literally "squish" the lens out through the incisions. It was a simple yet remarkable improvement on Daviel's technique and was rapidly adopted.

While some of the tools have changed over the years, the basic techniques have not. Today's modern laser surgery is actually an extension of that early approach, but current methods are painless and much more precise.

Cataract surgery techniques continued to advance as Dr. Bochner's practice grew. By the 1950s, celebrated Spanish ophthalmologist Dr. José Barraquer was using enzymes to dissolve cell tissues in order to facilitate lens removal. A few years later, Dr. Tadeusz Krawicz, a Polish eye surgeon, introduced cryosurgery – freezing the surface area with a small probe and extracting the opaque lens of the eye.

Less than a decade later, New York physician Dr. Charles Kelman started breaking up the cataracts by using ultrasonic vibration and then aspirating – vacuuming out – the pieces. This was called phacoemulsification.

As well as the surgical advances of the mid 1950s and 1960s, other forms of tremendous progress in artificial lenses was being made. British

ophthalmologist Dr. Harold Ridley had noticed while treating pilots during World War II that those who had shrapnel from shattered cockpit windshield acrylic embedded in their eyes did not experience rejection of the material as they would other foreign materials.

Dr. Ridley experimented with Perspex®, a transparent thermoplastic, and performed experimental and temporary implants of artificial lenses. This concept of a replacement internal lens for the human eye was groundbreaking and by 1952 the first Intraocular Lens (IOL) implant operation was performed at the Wills Eye Institute, Dr. Bochner's alma mater. IOLs have since become the standard of care for ophthalmology surgeons the world over.

Dr. Harold Stein also played a pivotal role in furthering the cause of binocular vision by developing a contact lens to be used as a replacement after cataract surgery. "Just around the time I began practicing in 1958, Czech chemists Otto Wichterle and Drahoslav Lim had developed the material to make soft contact lenses, which was a significant breakthrough since the earlier contact lenses were made of hard glass or acrylic. These materials didn't allow the eye to breathe, which caused all kinds of problems," said Dr. Stein. He introduced the concept of making lenses without any prescription simply to be worn post-surgery to protect the cornea while it healed. It was promptly dubbed the "bandage lens" and it is still in use for keratoconus patients to protect against rupturing of the "cone" formed on the cornea. It is part of the Bochner practice known as Medical Contact Lens fitting. This is different from the traditional contact lens used to correct myopic vision, a popular alternative to glasses.

"These contact lenses are used for medical reasons alone, not simply for vision correction," explained Dr. Stein. "The fitting has to be much more precise and for that reason we use only the most experienced and skilled contact lens fitters."

As a result of the evolution of cataract surgery, as well as the expertise of the Bochner's medical contact lens fitting department, the clinic has become a hub for referrals across Ontario. Dr. Stein and his colleague, Dr. Bernie Slatt, wrote the definitive medical text book on medical contact lenses, which is now in its fourth edition.

"We tend to get the complicated fittings cases referred to us," noted Dr. Harold Stein. "We see those patients with astigmatism needing toric contact lenses and other situations beyond the skills of most opticians."

Today, the Bochner Eye Institute offers a few interocular options for both cataract patients and those with severe vision correction problems. These include cataract surgery, IOLs, Refractive Lens Exchange (RLE) in which the natural lens of the eye is replaced with an artificial lens, and Implantable Contact Lenses (ICL) in which a tiny contact lens is inserted into the eye.

The cataract procedure is called phacoemulsification, which can be done either with a scalpel or with more advanced technology using a laser.

A small incision is made in the periphery of the cornea. The big difference is that the original scalpel incision used to be about 160 degrees of circle – quite large in relation to the cornea of the eye. With advanced technology that incision has dropped to just two millimetres – tiny by comparison.

With the incision made, an ultrasonic needle is inserted through the opening. The needle vibrates at an ultrasonic frequency and breaks up the lens. It's also hollow so it can also suck up the pieces. It was invented in 1967 by New York ophthalmologist Dr. Charles D Kelman, who was inspired by a dentist's ultrasonic tool. At that point an IOL is inserted and, after recovery of about two to three weeks, the patient's vision is restored.

In December 2012, the Bochner Eye Institute added a new bladeless laser cataract surgery technology to its repertoire. The Catalys Precision Laser System is an exciting advance for cataract surgery – and a first for Canada.

The system has some unique advantages: the incision is better at self-sealing, and the laser cuts are much more precise and follow the eyeball's natural contours. The technology reduces astigmatism and provides sharper imagery for the surgeon, resulting in more accurate placement of the intraocular implant, which in turn adds greater stability.

"The laser is also used to fragment or break the cataract into small pieces before being removed with ultrasound," noted Dr. Raymond Stein. "Approximately 95 per cent less ultrasound energy is required to liquefy and remove the cataract. This reduced energy is safer for the long-term health of the corneal endothelial cells and often leads to clearer vision in the early postoperative period."

The IOLs are also an alternative option for LASIK or PRK candidates who for whatever reason are unsuitable for those surgeries. The procedure is called Refractive Lens Exchange (RLE). It's quite similar to cataract surgery but in this case a healthy but ineffective lens is removed and replaced with an IOL.

One of the drawbacks was that IOLs used to come only in fixed focal lengths, meaning patients had to choose between distance and close up vision and wear glasses either when driving or watching movies or reading, depending on which option they wanted. More recently, multifocal IOLs lenses have become available offering a wider range of focal lengths, which better accommodate a wider range of vision activities. But there is no one-size-fits-all lens like the original lens, which came with the human body – not yet, anyway.

The third option, which does not require removal of any tissue for permanent vision correction, is the Implantable Contact Lens (ICL) which is a tiny contact lens inserted inside of the eye.

All of these procedures have risks and benefits, which should always be explained fully by the surgeon or staff.

Finally, in the realm of excimer laser surgery, the Bochner Eye Institute has been a pioneer in the treatment of a fairly rare condition called keratoconus – a progressive disease of the cornea most often found in adolescents and young adults (though the aging process actually stabilizes it).

It involves the continual thinning of the cornea to the point where the centre starts to "bulge" like a cone. This occurs because as the cornea thins, it weakens and the natural pressure of the eye pushes it outward. The resultant effect is to distort vision and it seriously affects the quality if life because simple things like driving, watching TV or reading either become impossible or extremely difficult.

The first phase involves an assessment of the patient's corneas both by visual examination and the use of a digital imaging system, the Pentacam, which scans through a series of diagnostic tests, which capture some 20,000 points of data from the cornea to create a 3D map. As part of this phase the patient will also undergo examination by The Ocular Response Analyzer (ORA), which measures the biomechanical properties of the cornea and assists in an overall diagnosis.

If keratoconus is diagnosed, the next step is to determine how quickly it is progressing or if it is stable. If treatment is required, there are a range of options which will be presented during the counseling. They may be therapeutic or refractive, which include contact lenses, corneal crosslinking, topographically-guided PRK, intrastromal corneal rings, and phakic implants.

In the past, treatment options were somewhat limited and involved corneal transplants, but more modern developments have revealed a range of choices. One of the newest procedures pioneered in Canada at the Bochner Eye Institute uses a combination of eye drops and ultraviolet light called corneal collagen cross-linking. This is typically combined with a topography-guided PRK to improve the quality of vision.

Corneal collagen crosslinking (CXL) is now the standard of care in patients with keratoconus and prevents the risk of a corneal transplant. It involves riboflavin eye drops – also known as vitamin B2 – in a special formulation and the application of ultraviolet light.

First, the anesthetic eye drops are applied and then a soft brush is used to remove the outermost layer of corneal cells, somewhat similar to skin derma abrasion at a spa but obviously a lot more gentle and specific.

Next, the Excimer laser is used to reshape the cornea by flattening steep areas and steepening flat areas and then the riboflavin drops are applied. Once the drops penetrate the cornea, Ultraviolet A light is applied for about 10 minutes.

This activates the collagen crosslinking. Think of them as fine filaments, which form an invisible web over the cornea, gently stabilizing it and preventing it from bulging out further.

After treatment, a special “bandage” contact lens is fitted to protect the cornea for four or five days. It has a 98 per cent success rate with a single treatment and 80 per cent of patients gain at least one or two lines of visual acuity – the ability to read – more lines on the Snellen’s standard eye chart.

Chapter Twelve

The Founding Partners Reflect

The idea of a surgicentre, a private facility where doctors perform surgical procedures outside a hospital setting, more efficiently and without wait times, was something Dr. Harold Stein had long wanted to create. However, the law wouldn't allow it.

Initially, the only way he could accomplish his vision was to buy an existing facility with a hospital license, and those were few and far between. "There was an eye hospital on St. Clair Avenue," he recalled. "It was a nice facility for day surgery and I tried to purchase it because I was becoming very busy with cataract surgery, but the physician who owned it wouldn't sell. It turned out that his hospital site was only valuable for land use as a condominium. As a result the owner forfeited his license for the hospital and sold his building to a condominium developer. As a result, I lost out."

Still, things were about to change in the political realm. The pioneering work to create special surgical clinics to better serve patients outside hospitals was done through the efforts of Dr. Henry Morgentaler, who put his reputation, license to practice medicine and personal freedom on the line to offer women safe abortions in the 1960s and 1970s.

He opened a series of clinics across Canada to ensure women did not have to seek dangerous, back road services which often resulted in death. At the time, many hospitals refused to perform abortions. After several court battles, the 1988 Supreme Court of Canada decision declared the 1968 abortion law unconstitutional. In 1991, this led Ontario to declare that abortions in private clinics would be paid for through the Ontario Health Insurance Plan.

The province didn't want these centres to operate as unlicensed institutions, so they passed a law requiring a license. This opened the door for surgicentres like the Bochner Eye Institute. While ophthalmologic surgery was hardly controversial, the concept of treating patients outside a hospital and charging them a facility fee was political dynamite.

At the time, political debate raged around accusations that the Ontario government was quietly allowing two-tier medicine to become established through a back door. The fear was that if it was allowed to take root, it would undermine the Ontario Health Insurance Program.

Critics claimed that, inevitably it would be one system for the wealthy − or at least those able to pay − and another for the poor. The pay-for-service system would attract the best doctors and facilities, draining them away from the insurance-funded system. This would leave the poorer segment of the population under-served and at risk – precisely the type of phenomenon that socialized medicine was designed to prevent.

When the Toronto Star published a story about patients being charged for services offered at the Stein Surgical Centre, there was a storm of controversy in the Ontario Legislature at Queen's Park. "We were charging a facility fee which wasn't covered by OHIP and which we were not paid by OHIP. Patients still had the choice of going to a hospital for cataract surgery but they would face a waiting list. Our patients preferred to pay a facility fee in order to have their surgery done earlier," recalled Dr. Harold Stein.

Still, on the surface it appeared like a surcharge for medical treatment. The leftist New Democratic Party furiously hammered the Minister of Health during Question Period on June 11, 1987. At the time, the Party was led by Bob Rae who became Premier of Ontario and later led the federal Liberal Party.

An edited version of the transcript from Hansard, the official record of the Legislature, reads:

> **Mr. Rae:** I have a question for the Minister of Health. My question to the minister concerns the discrepancy between the treatment offered to patients with money and patients without money in the province. I would like to ask the minister if he is aware of the practice at a place called the Park Plaza Surgical Centre – which is apparently a privately operated facility for people with eye problems and needs for eye surgery – where patients of Dr. Harold Stein, who is the chief of ophthalmology at the Scarborough General Hospital, are given a surgery option sheet which I have just shown and handed to the minister?
>
> This surgery option sheet gives the patients of Dr. (Harold) Stein three options. They can either have their surgery done at the Park Plaza Hotel at $700 an eye – in the case of the patient who brought this to our attention, it would have cost him $1,400 in three or four weeks – or they are told there will be a waiting list of between three to four months for healthy patients and six to seven months for people who are inpatients. In fact, others have been told it will be even longer. I wonder if the minister can tell us, is he aware of this practice and what does he intend to do about it?
>
> **Hon. Mr. (Murray) Elston (Liberal Member of Provincial Parliament and Minister of Health at the time):** I have made some preliminary inquiries, but I have not yet received any further feedback, with the exception that I do understand there are a sizeable number of operations which are performed at this location, a location which is a private facility, as the member has rightly identified.

Mr. Rae: Perhaps it is appropriate on this day, which is not only the anniversary of Bill 94 but also the day of the election in Britain, to look at the practice of Harley Street medicine in the United Kingdom and at the Thatcherization of health care in that country, where those with money are able to purchase a qualitatively different kind of health care from people who have to rely on the public service. This seems to be a classic case of Thatcherized health care right here in Canada where those with money in their pockets, those who are willing to pay, are told that they will get care far faster and far speedier than they would under the public system in which this doctor also practices. I would like to ask the minister, is he not concerned about this practice, and what does he intend to do to stop it?

Hon. Mr. Elston: I can tell the member that one of the things we have discussed as ministers of health across Canada is the question of the operation of private clinics and the impact that it has with respect to the Canada Health Act and the objects of that particular piece of legislation. It is something we have not as a group been able to fully come to a conclusion about, but is something that is of ongoing discussion in the national scene as well as of concern here in the province.

Hon. Mr. Elston: I can (say) the operation of private clinics is a matter of discussion. It is a matter of concern with respect to what the impact and effect are on the operation of public hospitals in this province and in other areas.

"In those days, and for years afterwards, protecting and preserving Medicare was a huge political issue," recalled Dr. Stein. "While social medical care is now an important part of Canadian culture, it wasn't introduced until 1966 − although Tommy Douglas, the father of Medicare in Canada, introduced it in Saskatchewan in 1946. Anytime anyone – most often the left-leaning political parties like the NDP – got a sniff of any doctors or clinics performing procedures privately, they raised hell."

Dr. Stein was tipped off on a particular item by a patient turned TV reporter with Toronto based CITY-TV. "He called and said my name had been raised in the legislature that day, and that the press would swoop down on me and write this up for the papers, TV and radio," he recalled. "I was in Scarborough but I phoned my bookkeeper Connie, who kept reporters from coming in to the Park Plaza office for photographs. Still, the story wouldn't go away."

"The more we said 'no newspaper reporters or pictures,' the more the media wanted to know. It was a hectic few days for me trying to dodge the press," said Dr. Harold Stein. "The positive benefit was that people found out there was a place where they could have their cataract surgery done without a long wait and I became even busier!"

Still, at first, the Ontario government wanted no one − not even Dr. Morgentaler − to establish private surgicentres. The Supreme Court decision unblocked

that position, so the next best thing for the government to do was to form a Legislative Committee that would decide where various jurisdictions lay.

"Everyone had to present a brief and appear in front of a Committee of the Legislature consisting of PC, Liberal and NDP MPs," stated Dr. Stein. "We had twenty minutes to read our brief. When I presented myself to appear before the Committee, there were thirty people ahead of me, all with large forty-to-fifty-page briefs. I knew I would have no time to read my six-page brief!" Instead, Dr. Harold Stein circulated copies and spoke off the cuff, arguing why the Park Plaza Hotel offices should have a surgicentre license.

"After twenty minutes they asked if I could stay another twenty minutes," he said. "They had funding only for grandfathering five out of the thirty who had applied, but I was to be included in the five."

The next step was wrestling with the government policy pundits. "They asked for many details on cost, which we provided, right down to the cost of a needle per case," he noted. "But then they offered a low dollar amount to manage the surgicentre. I kept saying it wasn't enough to carry on first-class eye surgery. It took almost two years of negotiating to reach an agreement with proper amounts set aside for new equipment and microscopes.

Dr. Harold Stein recalled that initially he was offered $65 per hour for supervision, for only two hours per week. "I replied that this was low considering all the reports I would have to submit to the government. While insurance companies paid me $150 for a single report. I also had to be responsible for quality control, new drugs, ordering supplies − and any infections that arose. The physician representing the government said that he received only $65 an hour, and that the job was strictly secretarial and not medical."

Dr. Stein accepted the arrangement. "If I had refused, they would have walked away," he stated. "We went forward on March 1, 1993 with funding for cataract, laser and other minor surgery in the surgicentre. The College of Physicians and Surgeons of Ontario wanted to review all our records and they sent in inspectors to tour our facility. They found we absolutely met the standards of major hospitals and, in fact, probably surpassed them. One of the standards they requested was a procedural manual showing that we knew how to deal with certain things if they should occur, such as a fire on the premises.

"I went through the Hospital Committee meeting records and extracted from them many of the details for a suitable procedure manual. They wanted to know what we did with disposable needles with AIDS patients and how we handled patients with such illnesses as sickle cell anemia and hepatitis. They were right in asking all those questions," Dr. Stein continued.

"I photocopied the hospital procedure manual in those areas onto my own stationary. Routinely, they would ask me to appear at the College headquarters to review the inspectors' reports. Everything seemed to be in order and they had many positive suggestions," added Dr. Stein.

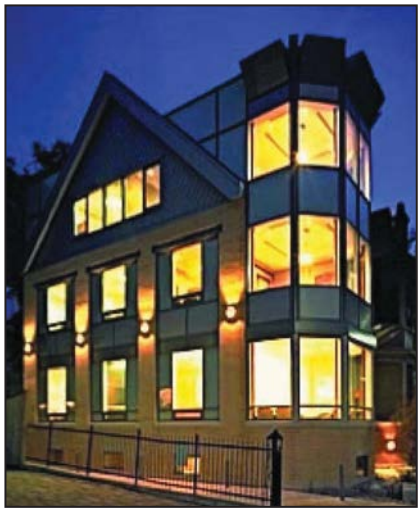
"However, they found there was no discharge note on my chart noting, 'sent home'. I replied, 'I give the patients a verbal discharge. Does the College think patients are still living on the premises from two years ago?"

"They also stated that the procedure manual looked like it was photocopied. I said, 'Do you know why it looks like that?' They said, 'No, why?' I said, 'Because it was photocopied! I don't think that any institution but a hospital could have a committee structure that would research the management of AIDS, disposal of needles and removal of waste. If I had a whole year to work on it, I could not have come up with a better solution. Consequently, I photocopied the many pages required.'"

"After that, the only request they had was that I would type this information on my stationary so that it didn't *appear* as if it were photocopied," said Dr. Stein.

Chapter Thirteen

Prince Arthur Avenue: Home at Last



Bochner Eye Institute

Dr. Max Bochner still personally greets patients every day at the Bochner Eye Institute.

His portrait hangs at the front door and he and his colleagues at the surgicentre are intent on imbuing a spirit of patient-centric care as they carry out their daily routine.

With about 8,000 square feet and 30 full and part time staff members, 40 Prince Arthur is a hive of activity. Just walking in the door, however, it's easy to see why so many patients would opt for treatment at this facility.

For one, it's nothing like a hospital. If it weren't for the staff in surgical scrubs meeting and greeting patients, it could easily pass for a library.

Despite the steady stream of patients, however, there's a hushed ambience created by the pastel décor, high ceilings, marble trim and plush carpets. Reproductions of Monet and Van Gough paintings hang on the wall, along with congratulatory letters from dignitaries and politicians marking The Bochner Eye Institute's 85th anniversary.

Television and sports personality Don Cherry gives his vison correction surgery a big thumbs up with Dr. Raymond Stein.

While the clinic hasn't always been housed at this same location, Prince Arthur Avenue itself is a jewel in the crown of Toronto's history and architecture. It was

named in 1870 after the Duke of Connaught (1850-1942), who served as Governor General of Canada from 1911 to 1916.

The original owner of the land along the Avenue, James Metcalf, subdivided it in 1870 and homes soon sprung up from the 1880s through to the turn of the century.

The Bochner Eye Institute's three-storey structure, built around the last years of Queen Victoria's reign and the start of that of Edward VII, is a prime example of upper income level residential construction of the area, but it isn't unique in terms of history or occupants. Home to James Main, a prominent figure in the insurance sector in the early 1900s, it was later also home to a young physician, Frank Reuben Henne, age 24. He lived there when he was first married in 1926 – about the time when young Dr. Max Bochner was returning to Toronto from the Wills Eye Institute.

Dr. Henne, a graduate of the University of Toronto, interned in Ottawa, was licensed as a psychiatrist and in 1956 was appointed Director of the Newark State School for Mentally Defectives. Over the years it has had many occupants, including a University of Toronto fraternity in the 1940s.

Dr. Harold Stein bought the building as a "back-up facility" with an eye to the future in the late 1970s. It turned out to be a shrewd plan. When the Park Plaza announced it was going to close down for a complete renovation in 1988, the upshot was Dr. Harold Stein and Dr. Albert Cheskes would have to find new offices. For the convenience of patients and staff, it would have to be something nearby.

Patient vision is carefully checked.

"The Park Plaza was a great office space but as a hotel, it had seen better days," said Dr. Stein. "This was going to cause problems for our practice but we knew it had to be done."

Staying put in protest wasn't an option either. "We don't mind if you stay, they told us," says Dr. Harold Stein.

"But we are going to shut the heat, water and electricity off. If you feel that you and the patients can proceed with business without all those things for the next two years then you are welcome to stay. I quickly accepted the fact that we had to move!"

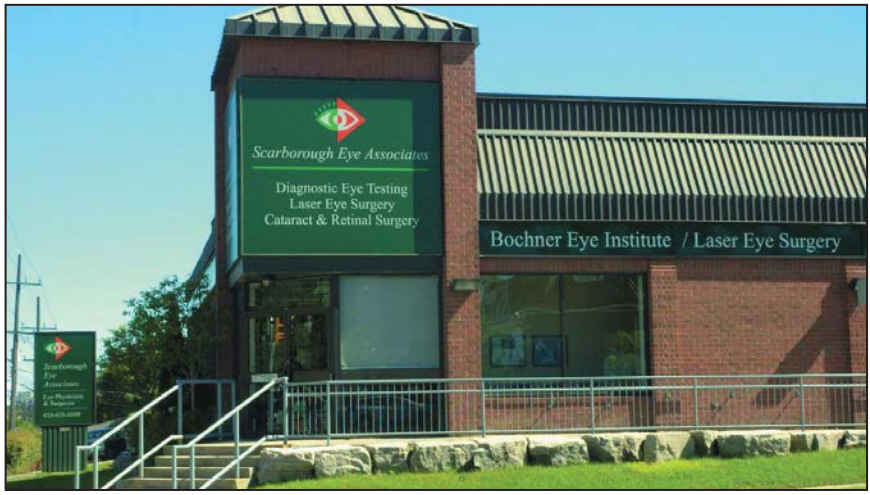
The timing was good too, since the existing tenant, a publishing house, had gone bankrupt and the space was empty. Renovation plans were drawn up, permits were issued and after some construction and modifications, the offices were ready to receive patients.

Of course, opening as a doctor's office was one thing; getting the building ready to accept a new state-of-the-art piece of laser equipment would require some pretty elaborate architectural surgery.

Luckily, they didn't have to look far, as Dr. Harold Stein's son, Gary Stein, is an architect. He went to work to come up with the required designs and plans for the renovation.

First, access to the basement would have to be dug out from what was the parking lot. Then, Dr. Harold Stein says, there was lot of nipping and tucking to get the new laser in.

"The city made us put this expensive steel plate with steel beams to support a fire engine. When we got down four feet we discovered a river – it was actually Taddle Creek which dates back to the creation of Toronto and runs



The Lawrence Avenue East location serves as an office for patient assessment.

under the city into Lake Ontario – so we had to dig deep to get good structural support," recalls Dr. Harold Stein.

"Eventually, of course, the laser was in, and in 1991 the Bochner Eye Institute was among the first in Canada to perform laser vision correction."

Other milestones quickly followed. New lasers and innovative technologies also found their way into the building, such as the lntralase-iFS Advanced Femtosecond Laser, a blade-free apparatus used to creating the corneal flap, the first step in most laser vision correction procedures. The surgeons at The Bochner Eye Institute have also pioneered a flap-free laser surgery technique.

Another innovation was the Allegretto Wave Eye-Q Excimer Laser, one of the most advanced Excimer lasers. It was introduced for use worldwide in 1999. For the first time, patients' eyes could be first "mapped" by a laser system. The patient's eye contour data is then entered into the Excimer Laser which uses it to guide the procedure for optimal results.

More recently, a new piece of ophthalmic technology called the Avedro KXL was installed at the Institute. This is a state-of-the-art system to treat keratoconus utilizing a technique called "cross-linking".

The Catalys Precision Laser System for cataract surgery was installed in December 2012, the first unit in Canada. It was carefully navigated through the third floor fire escape door to its location in an operating room across the building.

With the space configured the way it is now, it's hard to imagine where the next item of eye care innovation will fit, but one thing is certain: if there is better technology or a more advanced technique available, there will always be room for it at the Bochner Eye Institute.

For many years, Dr. Ghani Salim assisted with research and oversaw the installation of medical equipment at the Institute. He arrived at the Bochner Eye Institute in 1994 as a young foreign doctor who started working as an ophthalmologic assistant, taking patient histories and performing basic examinations.

With a growing young family now settled in Canada, Dr. Salim found the work at the Bochner fulfilling and the atmosphere to his liking. "It's wonderful to

work with these doctors," he said. "Really, I'm not just saying that because they're my bosses."

He became the Clinical and Research Director and today he is part of a contingent of long-time staffers who help make the Bochner more like a home than a clinic. Even his children have worked there.

Over the years, Dr. Salim has been involved in developing clinical research papers with Drs. Harold and Raymond Stein. But perhaps even more importantly, he, along with Drs. Stein, has researched much of the new technology that keeps The Bochner on the cutting edge of medical advances in ophthalmology.

"We were performing surgery with the first Nidek laser in Canada, which came from Japan, Dr. Salim explained. "At the time we had no room yet in our building, so we actually rented a couple of rooms at the Park Plaza Hotel and escorted patients over there where we had it set up the laser and pre- and post-op areas."

While the majority of patients visiting The Bochner on any given day are there for a consultation, eye exam, advanced diagnostic tests or follow-up, many arrive for their surgery, for cataracts, refractive laser procedures or for treatment of their dry eye problems.

No matter how much they have been told about the procedure and how much they have accepted it in their own minds, it's often a scary thing to lie down and have someone cut into your eye, one of our most cherished and vulnerable organs.

"The aspect that surprises the bulk of people," said Dr. Salim, "Is that most laser procedures take just a few seconds, along with brief periods of preparation and then recovery."

"We encourage people to come with their family members if it makes them more comfortable as, unlike in a hospital, they aren't going to be left outside in the hall," he stated. "They can watch the entire procedure through the window of the operating room as one of the staff explains to them what's going on."

He proudly stated that the results are spectacular, especially for cataract and laser surgery patients. "They literally get off the table and are able to see. It's a great feeling to help people see clearly again."

"The Bochner's reputation attracts patients from the world over," Dr. Salim added. "Thankfully, our staff is also very diverse. So even if a patient doesn't speak English, there's usually someone here who speaks their language. We have many staff members who can speak more than one language. I think Dr. Ray Stein now knows at least a few words in Cantonese!"

"As a result of The Bochner's long-standing reputation in the community and around the world, we receive a lot of referrals. Reputation is one thing but I think what makes people feel comfortable coming here is that the Institute has been in existence since 1929," stated Dr. Salim.

"Clinics open and close, doctors come and go, but here everything has remained consistent throughout three generations. Patients who come to us may have seen Dr. Bochner when they were very young and then became Dr. Harold Stein's or Dr. Cheskes' patients. It all adds up to a bond of trust between the clinic and the patients," Dr. Salim continued.

"We've treated three generations of many families, one for cataracts, one for vision correction and the other for sight enhancement," he said. "I think one of the big differences is that we are not a hospital. This really is more like home," he explained. "Surgical patients can relax here and enjoy having coffee with their families. It's not an assembly line. It's really as if you are meeting people in your own home."

In his basement office, located next to the laser recovery lounge, Dr. Salim keeps a watchful, caring eye on patients while he handles his daily workload.

"When it comes to cataract surgery, an advantage we offer over the Ontario hospital plan, which only offers certain lenses, is the option of a premium lens," he stated. "Overall, the level of care and treatment is a little different and people like that."

Finally, he says, one of the cornerstones of The Bochner, beyond its philosophy of patient care and its commitment to use the latest technology, is the people working there.

"What distinguishes us is that while the technology changes, the staff and the doctors remain the same," noted Dr. Salim. "Aside from the surgeons, we also have a staff who have been here for many years, even longer than me. People tend to stay, which is great! In fact, one staff member travels more than

170 km daily to get to work and back home. The doctors are very successful but it hasn't changed them. They treat everyone well and they are truly good people."

In addition to the main office, The Bochner has two other offices located in Scarborough and Markham that offer medical assessment, consulting and patient referrals.

While healthcare is funded by the Ontario government and is available to all residents, the practice of medicine is much more like a small business than a government department.

Every Ontario doctor − from general practitioners to neurosurgeons − pays for their own office, funds their own equipment and hires their own staff. They then bill the insurance plan − the government program – at the rates determined for each procedure or appointment, according to the fee schedule established by the Ontario Health Insurance Plan (OHIP).

While doctors may also hold positions in hospitals, consult with patients there and perform in-hospital surgeries, they also see patients at their own offices. In the case of specialties, such as ophthalmology, it's not uncommon for a group of doctors to work as partners or associates, sharing offices and the related overhead costs of staff and equipment.

Thus, the Bochner office in Scarborough is also home to Scarborough Eye Associates, a collaborative practice Dr. Harold Stein first set up when he started practicing.

The location is literally across the street from the Scarborough Hospital where Dr. Raymond Stein also practices as Chief of Ophthalmology (he's also the corneal consultant at Mt. Sinai) and where Dr. Harold Stein was once Chief of Ophthalmology.

Lynn Maund, who has been fitting contact lenses and helping patients at The Bochner for decades, explained that the offices were originally across the street and remained there for roughly 50 years. "Dr. Harold Stein was there originally but it became so crowded and cramped that we couldn't move," she recalled. "So they bought what was a TD Bank building across the street and renovated it. At the time they even talked about adding a second storey but that hasn't happened yet. We sure could use the space today."

The location serves as a base for Drs. Albert and Jordan Cheskes, and Drs. Harold and Raymond Stein. While vision correction surgeries are performed at the downtown location, follow-up appointments take place at the Scarborough location. "There's also a busy practice in retinal repair surgery and glaucoma surgeries," said Maund. With Scarborough General Hospital across the street, patients who are candidates for corneal transplants and other surgeries there also see the surgeons at their offices prior to and after the procedures.

The Unionville office at 147 Main Street acts solely as a patient information centre for referrals downtown. The Unionville building itself has its own unique history. It is a heritage property with a plaque noting that a former mayor once called it home.

The town was founded in 1794 and is a wonderfully preserved historic location where virtually all of the original buildings have been restored. "When we bought it, though, a strong wind would have blown it over," recalled Dr. Albert Cheskes. "We spent quite a bit on having an architect refit and renovate it."

The result is spectacular and Dr. Cheskes loves the Unionville office in particular. "It's a breath of fresh air, making you really feel like you're 100 miles from the city," he said.

The Unionville location on Main Street was built around 1875.

Chapter Fourteen

Giving Back to Those in Need

Drs. Raymond and Harold Stein on an ORBIS mission.

Dr. Max Bochner's legacy is more than just his name on a building. After overcoming personal adversity and prejudice, and seeing patients devastated by the Great Depression and being unable to afford much-needed treatment, he knew how important it was to give back to the community that supported him.

He began his practice during those difficult years of the Great Depression, which started in1929 and lasted until the early 1940s.

Unlike the financial collapse of 2008 which triggered another Great Recession, at the time, there was no social medicine or unemployment insurance.

In his heart, however, Dr. Bochner knew he couldn't turn away patients who needed treatment because of their inability to pay. Growing up poor in Toronto, he had experienced poverty firsthand.

As a result, Dr. Bochner never turned away a patient because they couldn't pay. He charged his patients what they could afford. If they were wealthy, like Lady Eaton, he charged accordingly. If they were destitute, he waived the fee. And if they were farmers − Canada's economy was more than 60 per cent based on agriculture until World War II − he accepted produce as barter. His office was often cluttered with chickens and baskets of vegetables.

By the 1970s the introduction of socialized medicine in Ontario meant that everyone had the same access to medical care, regardless of income. But that didn't mean that there weren't patients elsewhere who desperately needed help from skilled surgeons.

The Ontario public health insurance plan was introduced at about the same time that Dr. Bochner retired and Dr. Harold Stein invited Drs. Albert Cheskes and Bernie Slatt to join the practice. As some of the pressure of seeing patients in two locations lessened, Dr. Harold Stein realized he now had an opportunity to extend his mentor's patient care philosophy beyond Canada, and to write books and scientific papers.

He had already taken part in medical assistance travel closer to home with one trip to the farthest reaches of Northern Canada, where the local First Nations and Inuit population rarely encountered specialists and typically had to travel thousands of miles to reach cities where they could be seen and treated.

During one of these trips, Dr. Stein met Dr. Elizabeth Cass from the North West Territories (now Nunavut). "She was an English ophthalmologist who worked in an isolated community in the Northwest Territories among the First Nations and Inuit," he said. "She spoke Inuit and was extremely energetic, travelling by dog sled to all the remote areas of the Northwest Territories. She was able to collect a great number of Inuit songs, and translated and archived them before they were lost to us all. That was my earliest entry into the aboriginal world."

Dr. Harold Stein performing surgery on ORBIS.

What he discovered was that Dr. Cass was a true organizer and activist for the Northwest Territories. At that time, the Territories were not as yet a province but were directly controlled by the Federal Government.

"She would frequently call then Prime Minister Pierre Trudeau and ask for special favours for the Northwest Territories," recalled Dr. Stein. "She would even call me from the North Pole and ask me to call Trudeau personally on her behalf. I kept saying I didn't think he would answer my calls so I never called him."

"About ten years later she invited me and a group of famous ophthalmologists from around the world to a meeting in Yellowknife and arranged all of the funding for it through the federal government," commented Dr. Stein.

"We visited the Inuit in their own environment," he said. "We shared meals with them, ventured onto the ice with them and went on dog sled rides. They were most hospitable. Then, we flew to a copper mine and stayed in the community centre overnight as there was no hotel. There was a terrible blizzard and we're lucky we survived."

In 1966, Dr. Stein set off for Haiti, the first of many volunteer trips with various non-government organizations (NGOs) to treat patients in impoverished countries including Peru, Pakistan, Cyprus, Malta, and Kenya.

The Bochner Eye Institute has collected thousands of pairs of glasses to send to third world countries. "At the age of 37, I wanted to do missionary work in ophthalmology so I volunteered to go to Haiti with an organization called Focus," recalled Dr. Stein. "François 'Papa Doc' Duvalier reigned supreme as the dictator of Haiti. He had been a medical doctor but soon became a ruthless and corrupt dictator."

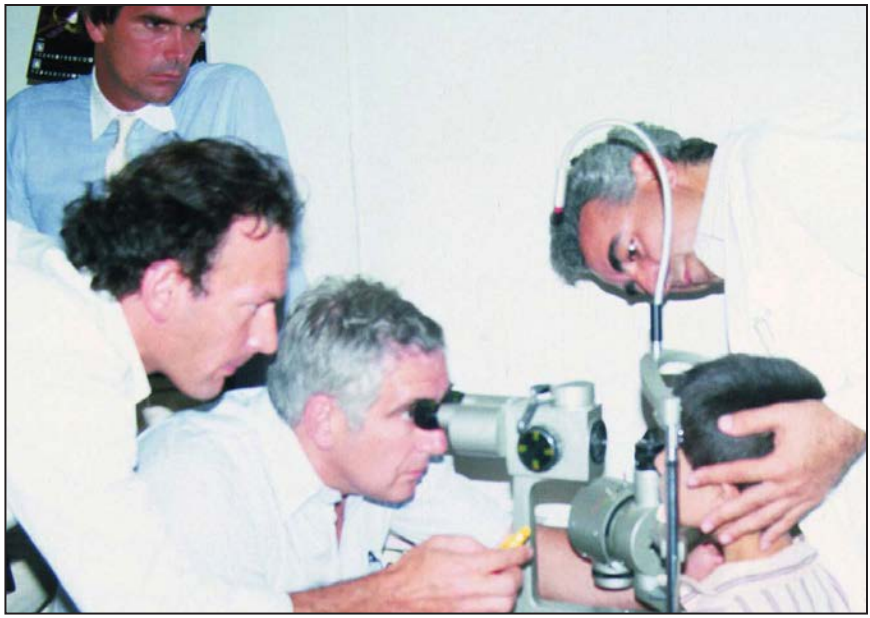
The Focus organization sent Dr. Stein about 250 miles north of the capital of Port au Prince on a journey that involved enduring many uncomfortable hours in an old jeep traversing a bumpy cross-country road to the northern coastal tip of Haiti. The trip took almost ten hours over rugged country terrain.

"We had to cross rivers without bridges," noted Dr. Stein. "When I opened my valise, the camera in my suitcase had completely fallen apart as all the screws had come loose."

Performing surgery under those conditions was not easy and the conditions were crude. "We had to scrub with rainwater and we had just a little electricity from a small generator that operated only a few hours a day."

The need, however, was overwhelming. "There were literally thousands of people who needed cataract surgery," says Dr. Stein. "They lined up in long queues at our outpatient centre to be examined."

The demands of a busy practice, however, meant that it would be nearly a decade before Dr. Stein would embark on another mission of mercy in 1977, this time to the Peruvian Amazon.



Teams of doctors visiting third world countries instruct local physicians in the latest techniques.

"My cousin, Dr. Gilbert Zuker, a general surgeon, had urged me to go and so I scheduled a trip to Puccalpo, about 500 miles from Lima, deep in the heart of the jungle of Peru along the Amazon River," said Dr. Stein. "No ophthalmologist had ever been to that part of the jungle." As such, it was major news on the jungle grapevine, in this case, the ham radio operators set up at various Christian missionary posts. Ham radio was a public band radio that allowed operators to chat with each other and relay signals and messages to other operators. In some ways it was an early forerunner of social media. Although it was crude, it was a communications network – the Facebook or Twitter of its time.

"News spread throughout the Indian tribes, which spanned all of Peru and several South American countries," recalled Dr. Stein. "This was important news and three months prior to my coming, I had numerous phone calls from these ham radio operators." One of those calls involved an Indian woman who arrived months ahead of schedule at Puccalpo, Peru with a serious injury to her right eye, requiring immediate attention.

A Ham radio operator in Detroit had picked up the signal. He called Dr. Stein's office in Toronto. While he wasn't scheduled to go to Peru for three months, the timing was good. The original plan was for the woman to travel a month by dugout canoe to get back home, then travel again for another month to return to Puccalpo because she lived in such a remote area along the Amazon.

The ideal alternative plan was to keep her at the location and wait three months for Dr. Harold Stein to arrive. "Fortunately, by sending antibiotics to her I was able to help her," he said. "She had not only a serious injury to the eye, but had developed a very dense cataract. I was able to remove the cataract and the patient's vision was restored."

Three years later, Dr. Harold Stein went to Pakistan to meet the legendary surgeon and American missionary Dr. Norval Christy. "He ran the largest surgical and outpatient surgery facility in the world and I was determined to watch him work," said Dr. Stein.

"It was inspiring to see him perform 250 cataracts in the morning, averaging about 40 per hour." It was all done with a system which, while efficient, would likely raise eyebrows in North America.

There were four operating tables in the same room and many assistants to sterilize instruments and prepare patients.

The waiting patients sat on a bench at the end of a table, then moved to the floor on the left side of table. When a patient got off the right side of the table after surgery, the patient on the left jumped onto the table. "It was a form of surgical musical chairs," Dr. Stein said with a grin. "It was amazing to witness."

In 1984, he was off on a mission again, this time with ORBIS, a refitted DC-8 airplane hospital that flies to third world countries and provide in-flight eye surgery. The initiative was developed by Dr. Richard Townely Paton.

There were, however, some challenges operating on the runway in Cyprus. "Whenever a jet took off, the air currents caused tremendous vibrations in the airplane. We had to stop operating and then continue between takeoffs and landings," recalled Dr. Stein.

Less than four years later, he was joined on another ORBIS mission by his son, Dr. Ray Stein, this time in Malta.

"Once again, we operated on the tarmac. Raymond did the corneal transplants and I did the cataract surgery," said Dr. Harold Stein. "The Maltese ophthalmologists who assisted us were excellent surgeons. We taught them the latest technologies and they in turn welcomed us into their homes."

In 2000, Dr. Stein travelled with a contingent of doctors and medical staff to Kenya with SEE International.

With his wife, Anne, on the trip, it wasn't long before she was pressed into service. "Anne was immediately drafted into helping with administering eye drops to the patients waiting to be operated on," he recalled. "She also acted as a scribe, recording all the events of the day and the operations that took place there. In addition to these duties she did some excellent sketches of events in the surgical centre."

As usual on these international ventures, the doctors have to make do with what they had. With four tables set up, four surgeons operated at the same time under both general and local anesthesia.

"Because I had plastic surgery experience and none of the others did, I was delegated to operate on all the tumours and growths in and around the eye," recounted Dr. Stein. "There were many fungus and worm diseases that had travelled to the eye because of the poor hygiene in the country, things we never really see in Canada."

He remembered one patient with a large tumour growing out of her eye, as large as a golf ball. "This was a pretty girl and her father was very unhappy as the disfigurement meant she would not get married," he said. "Her surgery took two to three hours, with plastic reconstruction of her entire orbit and removal of the growth. She looked beautiful after that, as I used very fine sutures to close all the incisions. When her father saw her again at the first undressing of the bandage, he actually cried."

Dr. Raymond Stein also enjoyed the opportunity to give back by donating his time and skills to countries with less-than-ideal medical care. "I was fortunate to travel with my father to Malta as part of the ORBIS project," he said. "This international organization has an airplane with a full eye operating room on board, equipped with a sophisticated audio and video system used to train

local ophthalmologists. My father and I did cataract and corneal transplant surgery on the plane runway at the local airport. We also had the opportunity to train many local doctors. It was satisfying to utilize the advanced equipment and ocular implants to help many patients who were blind."

A few years later he found himself in Nicaragua with his daughter, Rebecca Stein, his niece Christine Viner and surgical nurse Vinci Van. "We donated a piece of cataract equipment called a phacoemulsification unit to a surgical facility in Nicaragua. While we were there we operated on very poor people who were blind from cataracts," he said. "We also trained local ophthalmologists in advanced surgical techniques. Post-operatively, the smiles on the patients' faces were the most satisfying sight to our surgical team. In addition, we left the country knowing that the local ophthalmologists were in a better position to make a difference to those with serious eye care needs."

The drive to give back continues to weave itself through the family, with Dr. Raymond Stein's daughter Rebecca joining him to reach out to the people of St. Lucia in the Caribbean.

Damage to bridge secondary to flooding in St. Lucia

The island residents were devastated when Hurricane Tomas hit the region on October 20, 2010, causing landslides and killing 14 people, in addition to causing millions of dollars of damage to roads, bridges and homes.

Among the most impacted were the most vulnerable – the 160,000 people living below the poverty line. The damage and disruption of the storm exacerbated the existing problems for these people, which included a lack of adequate eye care with little or no access to eye physicians and surgeons, and no operating room facilities.

Rebecca Stein, then a third-year medical student at St. Andrews University in Scotland and her colleague, Justina Ray, a third-year science student at

St. Andrews, spent the summer of 2010 volunteering in St. Lucia, working at the island's only eye care centre, the St. Lucia Blind Welfare Association (SLBWA) that serves the entire population of the 620 square-kilometer island.

"Unfortunately, St. Lucia has only three trained optometrists and no resident ophthalmologists," said Rebecca Stein. "The island needed at least two practitioners, but relied on visiting doctors to perform surgeries." Among those visiting doctors was her father Dr. Raymond Stein.

It's still not enough, he said. "Those surgeries are limited to cataract and strabismus procedures, and help only a small percentage of patients who need urgent care. Many other eye problems such as glaucoma are not addressed and it is one of the leading causes of blindness in the Caribbean."

As part of their mission there, the Steins have delivered over 500 pairs of glasses to the *St. Lucia Blind Welfare Association* (SLBWA) and they continue to work with eye care professionals to collect eyeglasses or to donate their expertise and time.

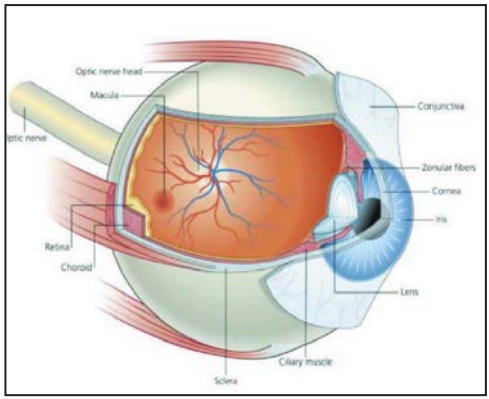
Diabetes is also prevalent in St. Lucia, as the result of poor diet and poverty. Ten to 15 per cent of the population has the disease.

The Bochner Eye Institute has collected thousands of pairs of glasses to send to third world countries

"The future of eye care in St. Lucia depends on Canada, the United States and other wealthy nations that can afford medication, lenses, equipment and medical personnel to offer their support," said Rebecca Stein. "The SLBWA is making a considerable effort to help those on the island, but with their limited resources they can only make a dent in treating everyone who is deserving of care."

Chapter Fifteen

A Vision for the Future



What will the practice of ophthalmology look like five years, ten years or twenty years from now? Dr. Max Bochner may never have dreamed of laser surgery during his years of practice. Even in the 1960s, toward the end of his career, lasers were the subject of science fiction fantasy and Hollywood movies, where aliens blasted high powered beams of destructive, concentrated light rays at their enemies or were the weapon of choice to conquer over-the-top evil geniuses intent on world domination in a James Bond adventure.

That they could be so delicate and so focused as to make surgical incisions on the human eye and restore vision within minutes would be unthinkable, perhaps even laughable.

We know now, of course, that the "impossible" has become possible and that with funding, time, research and dedication, new ideas, techniques and technology can dramatically enhance medical procedures and treatments.

"Dr. Bochner always told me we should see our patients once a year, even if they were completely blind and there was nothing more we could do," recalled Dr. Harold Stein. "He taught me to give patients hope, even when none existed. Dr. Bochner practiced during an era when the medications, techniques and technology we have today did not exist and sometimes hope was all we could offer."

Indeed, the pace of change in science and medicine today means that certain conditions that were untreatable or for which treatment was only partially successful just a few years ago are much more treatable today and will be treated even more successfully in the future.

Age-related macular degeneration (AMD) is an example of this. It results in vision loss around the centre portion of sight, as the result of retinal damage and typically it occurs in older patients. It is a major cause of blindness in those over age 50.

Patients are left with peripheral vision only, making day-to-day mobility, reading or watching TV almost impossible, seriously affecting quality of life.

There are two forms of age-related macular degeneration: wet and dry. Both affect the macula, which is the centre area of the retina where the eye's most sensitive light-detecting cells are located. In the dry form, debris collects between the retina and the back of the eye, causing detachment. In the wet form, which is more serious, blood vessels grow behind the retina and force it to detach.

AMD is quite common. Roughly one in 10 of individuals 66 to 74 years old will develop some form of the condition. By the time they reach 75 to 85 years of age, as many as one in three people will be affected. Family history of the disease plays a role in AMD, and research is underway into the gene that causes it.

Laser treatment and medication are often used. More recently, there has been great success using an anti-cancer medications such as Lucentis and Avastin which are anti-VEGF (Anti-Vascular Endothelial Growth Factor) treatments. The only downside is that the drug must be injected into the eye, a procedure which is both frightening and painful.

"Certainly in my area of retinal specialty, we're seeing more in the way of biologic agents such as anti-VEGF," commented Dr. Jordan Cheskes, who treats AMD and diabetes-related vision issues. "There are ever-expanding indications to use them in treating retinal disease. Right now they are short term − four to six weeks − but I'm sure one of the biggest developments here will be that in 20 years they will be longer-acting which means we won't have to have as many injections into the eye."

More recently, a new procedure has become available in Europe which is quick and relatively inexpensive, combining Anti-VEGF and x-rays. Oraya's IRay uses low-voltage, stereotactic, highly targeted x-rays for treatment of wet AMD in conjunction with anti-VEGF.

Clinical trial results have been good, reports Oraya Therapeutics, with INTREPID (IRay Plus Anti-VEGF treatment for patients with wet AMD) showing that after three years, patients had a 32 per cent reduction in the number of injections and had substantially drier retinas compared to those in the control group.

The company also reported that 25 per cent of treated patients "needed no further injections during the first year of follow-up." The machine looks much like a portable chest x-ray and the patient merely lies under it and stares into two "viewfinders" as though they were peering into a microscope.

For Dry AMD patients, the University of California is working on time-release implants which are inserted into the eye as "neuroprotective agents." The cells involved release a drug slowly over time and protect the retina from further damage.

The work is unending, as Dr. Raymond Stein noted. "Advances in ophthalmology continue to help to preserve or restore vision that has been lost as the result of a variety of conditions," said Dr. Raymond Stein. "As a Board Member of the Foundation Fighting Blindness (FFB), I have been involved in helping to raise funds for ground-breaking research on retinal diseases across Canada. Advances in stem cell research offer hope that a cure will be found for conditions like retinitis pigmentosa and other hereditary retinal conditions."

Implants are also continuing to evolve. They're smaller, thinner and easier to insert and newer, premium IOLs come in a wider variety of configurations, including toric for astigmatism and multifocal, allowing patients to read books and see at distance without needing glasses.

There are ongoing advances in so many areas, stated Dr. Raymond Stein. "Hope" is no longer just a word doctors fall back on. It often seems like things are changing overnight, although in reality new developments are the result of years of research by dedicated doctors and scientists.

"New advances in corneal surgery have developed with the transplantation of a thin layer of cells onto the back of the cornea to restore vision to patients with corneal swelling," he said. "In the past, a transplant was required which took a year to heal and multiple sutures were needed. With the new technique, vision can be restored with a quick operation and without the need for sutures."

There have also been important advances in glaucoma, another serious condition in which the pressure of the fluid inside the eye increases to the point where it causes permanent damage to the optic nerve and can lead to blindness if left untreated.

There are several variations of glaucoma, one with high pressure and another with low pressure, as well as the open-angle and closed-angle forms of the condition. The causes aren't clear, but genetics and diet may be factors.

Treatment traditionally involves eye drops, and for up to 90 per cent of patients this is effective. Some patients have found relief in marijuana, but research has not yet shown why or how it works.

For those patients whose condition cannot be controlled through medication, laser surgery and conventional surgery are also options but they may provide only temporary relief. Another surgical technique involves inserting a micro-catheter or fine tube into the eye to drain excess fluid and reduce the pressure in the eye.

The most common treatment is trabeculectomy, a procedure that also drains fluid. While effective, it is much more invasive, can cause scarring and may need to be repeated.

Another recent development is an intraocular shunt which may eliminate the need for eye drops and reduces eye pressure by 25 per cent on average, increasing to as much as 45 per cent in some patients. However, a new technique has been developed involving an electric wand − which takes just 15 minutes. It was invented by Dr. George Baerveldt, Professor of Ophthalmology at the University of California and is manufactured by the NeoMedix Corporation.

It's a variation of a trabeculectomy but instead uses a wand which cauterizes and acts as a vacuum. The wand, known as a trabectome, has a hollow tube running through it which is connected to a vacuum pump that sucks out the damaged cells. These cells are known as the trabecular meshwork and they which prevent the eye from maintaining normal pressure.

The results to date have been good and the procedure seems to be gaining acceptance on both sides of the Atlantic Ocean. It's the type of advancement Ghani Salim, the Bochner Eye Institute's Clinical and Research Director, keeps tabs on as part of his role in ensuring the clinic remains at the forefront of ophthalmic technology.

“There are great things going on today, not only in North America but also in other parts of the world,” noted Salim.

“Sometime procedures get approved by Health Canada before they’re approved by the FDA in the United States, making them available to us first. In some ways we’re ahead of the U.S., which attracts American patients to our practice.”

Indeed, documenting the advancing body of knowledge in ophthalmology is a task in which all the surgeons at the Bochner Eye Institute are involved. Between them, they’ve authored dozens of textbooks and hundreds of clinical papers.

For example, the textbook, “Management of Ocular Emergencies” is in its 5th edition. Written by Drs. Raymond and Harold Stein, it is one of several publications for which the father and son share credit.

The textbook is one of 37 books and 300 peer-reviewed articles by Bochner Eye Institute surgeons. Ghani Salim has also made several contributions to book chapters and research papers.

From the earliest efforts to treat cataracts with sharpened sea shells to laser surgery, implants and innovate drug delivery systems, science and technology have evolved over time and will continue to evolve.

As Dr. Bochner remarked, there is always hope that tomorrow will bring novel techniques and technology, as well as a new understanding of disease and medicine.

In his own lifetime he witnessed many changes, from the development of antibiotics and the insulin cure for diabetes to the invention of diamond scalpels.

Similar advancement occurred during Dr. Harold Stein’s career. From Charles Kelman’s phacoemulsification using sound waves to break up cataracts, to the development of soft contact lenses and artificial intraocular implants which became universal after cataract surgery, technological innovations continue to advance the field.

"The Bochner has always been on the forefront of advances in ophthalmology," he said. "And I know we always will be."

In the years since Dr. Bochner's passing, the pace of change has been frenetic. New developments include the introduction of lasers to map and make incisions, better implants and more effective treatments for a wide range of vision-related concerns.

Looking 20 or 30 years into the future, while no one can predict what breakthroughs will emerge, the real certainty is that medical science and its application will continue to advance.

"Although I do not intend on retiring for years to come, I know that ophthalmic technology will continue to advance," remarked Dr. Raymond Stein. "The safety, precision and accuracy of all the surgical procedures will continue to evolve. In the future, eye glasses and contact lenses will be a thing of the past. Society will begin to view people with corrective eyewear in the same category as individuals walking with a cane – as those with a significant disability."

Dr. Cheskes also believes that other branches of research will have an impact on his own area of specialty. "I think that a lot of things we're currently treating won't be dealt with in the same way in the future because we'll be treating them genetically," he said. "Treatment will be tailored to the genome. I think it will play a huge role in treating many disorders without surgical intervention."

Certainly, genetic research is proving invaluable and the mapping of the human genome, the source code for the human species completed in 2003, is providing a template for future therapies and research into preventing diseases.

The root causes of many eye disorders will also come under more scrutiny, said Dr. Jordan Cheskes. Diabetes and obesity, which reached epidemic proportions in the new millennium, will have to be addressed. Type two diabetics have issues not only with their metabolism, they are also at increased risk for heart disease, stroke and kidney failure.

As an ophthalmologist, Dr. Cheskes is also seeing an increasing number of patients for eye disorders such as blindness and cataracts as a complication of their diabetes.

In Scarborough, for example, where he practices at Rouge Valley Health System, the prevalence of diabetes among Asians who moved to the area has increased sharply, largely as a result of shifting from their traditional diet to our Western diet which contains more processed foods.

"Our society will have to come to grips with the Western diet," he said. "It's very hard for our bodies to process complex carbohydrates. We see a lot of issues stemming from diabetes."

While dietary changes are needed, Dr. Cheskes also commented that more diabetics will be using the pump system to continually provide insulin rather than giving themselves an injection of insulin after every meal. "I think there will be development in islet cell implants and other agents to help regulate blood sugars," he said.

Islet cell implantation is an experimental treatment for Type 1 diabetes, in which cells from a donor's pancreas are implanted into the recipient to kick-start insulin production and thus regulate blood sugar levels. While the concept has been in existence since the late 1960s, the big hurdle is dealing with the body's rejection of the implanted cells and the need for autoimmune suppressing drugs.

All of these advances, some predictable, others yet unseen, ultimately mean that the patient will be the winner. Today, innumerable people have restored or at least improved vision because of previous advances, whereas in earlier years blindness would have been the result.

Technology, science and medicine do not stand still. The Bochner Eye Institute was founded by one of the first fully qualified ophthalmologists to practice in Toronto and the torch has been passed down to three generations, a remarkable inter-generational achievement.

The Bochner prevails because of the skill and dedication of its staff and surgeons who ensure that the best techniques, technology and medicine are available to their patients.

Dr. Bochner would have approved. But he would also have cautioned that no technology, surgeon's skill or doctor's knowledge can ever replace this one quintessential element, the Mayo Clinic's core philosophy: "The needs of the patient always come first".

Indeed, in marking his passing, the Mount Sinai Hospital noted Dr. Bochner's 40-year relationship with the ophthalmic profession and community:

"Dr. Bochner's humility and humanity were the measure of a great man. He was an outstanding physician but, most of all, an unusual human being whose first concern was for people."