

Fifty Years of Gastroenterology at the University of Alabama at Birmingham: A Festschrift for Dr. Basil I. Hirschowitz

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Science is a living entity that may be likened to an onion, where every layer of discovery shed from the outside is replaced by another growing in the core. This fortunate fact will continue without end to provide work and enjoyment for future scientists.

—Basil I. Hirschowitz, 2006

Dr. Basil I. Hirschowitz is a native of South Africa. His grandparents migrated from Russia at the turn of the 19th century; there was some delay in his grandfather's arrival because of the Boer War. His parents were farmers and he thus grew up on a farm. Because of his aptitude, he was able to skip the second and fourth grades, graduating from high school at the age of 15 years. When deciding what career to pursue, he initially entertained engineering but conversations with a family friend led him to a more "secure" future in medicine. Given the English medical system, after high school, he was able to go directly to medical school to the University of Witwatersrand in Johannesburg, South Africa. However, because of his age, he was required to spend 1 additional year before graduating with his BS/MD degree; this extra training involved an assigned year of physiology and paleontology, 2 very disparate areas. The first year of his dedicated medical school training involved botany and zoology, and the second year anatomy, years 3 to 6 were the clinical years.

After graduation, he then entered 2 years of residency where half of his time was devoted to medicine and the other half to surgery. It was during this time that he developed an interest in gastrointestinal disease. While a junior resident in Johannesburg, he had a glimpse at the stomach through a rigid gastroscope, and during his residency, he performed several cholecystectomies. After completion of his residency in 1950, he traveled to London, England where he was a resident at the Royal Post Graduate Medical School initially under the tutelage of a cardiologist Sir John McMichael. While in England, Dr. Hirschowitz was involved in treatment of the patient who received the first antihypertensive agent hexamethonium.

Although he enjoyed cardiology, given his previous experience in gastrointestinal surgery and the charisma of Avery Jones MD, he decided to change to the field of gastroenterology, where he was able to work with Dr. Jones at the Central Middlesex Hospital, one of the early pioneers of gastroenterology and endoscopy who founded the first endoscopy society. Dr. Jones had a medical-surgical service that again was of interest to Dr. Hirschowitz; this combination of medi-

cine and surgery was intriguing to Dr. Hirschowitz, and while he had inklings of becoming a gastrointestinal surgeon he felt he would need grounding in gastroenterology first.

His initial desire to perform gastroenterology had many roots. His interest in digestive diseases likely stemmed from his positive experiences with gastrointestinal surgery during residency training in South Africa. At that time, gastroenterology was a nascent specialty considered by some to be "internal dermatology." His positive experiences in London further enhanced his interest. While in London, he also studied gastric acid secretion with Dr. Jones. Dr. Hirschowitz has always had a fascination with "how things worked," and such was the case with the physiology of acid secretion. "Why didn't the stomach digest itself"? His doctoral dissertation in 1953 in England was on the physiology of pepsin and pepsinogen secretion.

Through a relationship between Dr. Avery Jones and Dr. H. Marvin Pollard, the Chief of Gastroenterology at The University of Michigan School of Medicine and then Secretary of the American Gastroenterological Association, he was able to garner an American Cancer Society Fellowship and travel to Michigan for a 2-year appointment. While in his second year at Michigan, he obtained a National Institutes of Health grant examining the mechanisms of acid and pepsin secretion. After change of his immigration status from visitor to immigrant, he was able to join the faculty as an instructor.

Given his interest in acid secretion, he worked in collaboration with the pharmacology and physiology departments, and a noted gastrointestinal physiologist (Horace Davenport) was Chief of Physiology at The University of Michigan.

During a weekly meeting at night among fellows and trainees, which included not only beer but also an intellectual discussion of the literature, an article was presented from *Nature* on fiber optics and light transmission.¹ While in England, he had become proficient in endoscopy using the Wolfe-Schindler endoscope through his mentor Dr. Avery Jones. The ability to illuminate the gastrointestinal tract, thus, was of keen interest to him. He then arranged a vacation and traveled to the Imperial College of Science in Kensington, England to meet the authors of this *Nature* article¹ and learn firsthand about glass fibers. Unfortunately, the length of the fiber discussed (9 in) was inadequate for endoscopic examination. Thus, he would need to adapt their technology to endoscopy. In 1954, he then worked with Dr. Wilbur Peters, an optical physicist at The University of Michigan, to further develop both fibers and endoscopy. He attempted to develop a teaching Y-shaped sigmoidoscope with 2 lenses designed for 2 physicians to examine the bowel.

At that time, silicone made by Dow Corning was being studied in the potential treatment of experimental ulcers in dogs. Through Dow Corning, Corning Glass provided free rods of optical glass, which were 1.5 in in diameter. Dr. Peters encouraged Dr. Hirschowitz to work with a young physics

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student, Larry Curtis. They decided to melt these 1.5-in fibers into hair-sized fiber-like taffy and then use a super glue to bundle these fibers together. Nevertheless, light was still lost. Curtis then suggested covering these rods with an additional layer of glass with a lower refractive index, so that the light that would travel down the optical fiber, bounce off the surrounding glass fiber, and continue down the core fiber. This principle called total internal reflectance was a major breakthrough for endoscopy. This collaboration between Drs. Peter and Curtis was exciting and a true model of multidisciplinary collaborative results, and such collaborative spirit was common at The University of Michigan. Most of this initial work was through a \$5000 gift to Dr. Pollard, presumably from a wealthy donor with much of the apparatus for making these fibers obtained from odds and ends in the physics department basement costing less than \$250. At that time, the clientele for these procedures were executives and other important dignitaries of General Motors. Indeed Dr. Hirschowitz performed more than 100 proctoscopes on these executives and opined that these procedures were "where they got the idea for the fins of the 1956 Cadillac."

The group submitted an abstract in August 1956 for a meeting in Lake Placid, New York of the American Optical Society. Curtis and Peter presented their article that generated significant interest especially in representatives of the optical instrument makers. Such enthusiasm only rekindled the efforts of the manufacturers to develop an endoscope. In 1957, the first fiberscope was ready for investigation. Permission was obtained from both patients and physicians at the University of Michigan for research in clinical trials. Dr. Hirschowitz then presented his early experience at the American Gastroscopic



FIGURE 1. Image of Abraham Lincoln on a postage stamp taken with a camera attachment on an early fiberscope.

Society in May of 1957 with pictures obtained via a small camera adapted for the endoscope (Figure 1). Subsequently, they began to look for manufacturers for their fiberscope. Dr. Hirschowitz called Dr. Levin of American Cystoscope Makers



FIGURE 2. The Hirschowitz fiberscope now resides in the Smithsonian Institute.

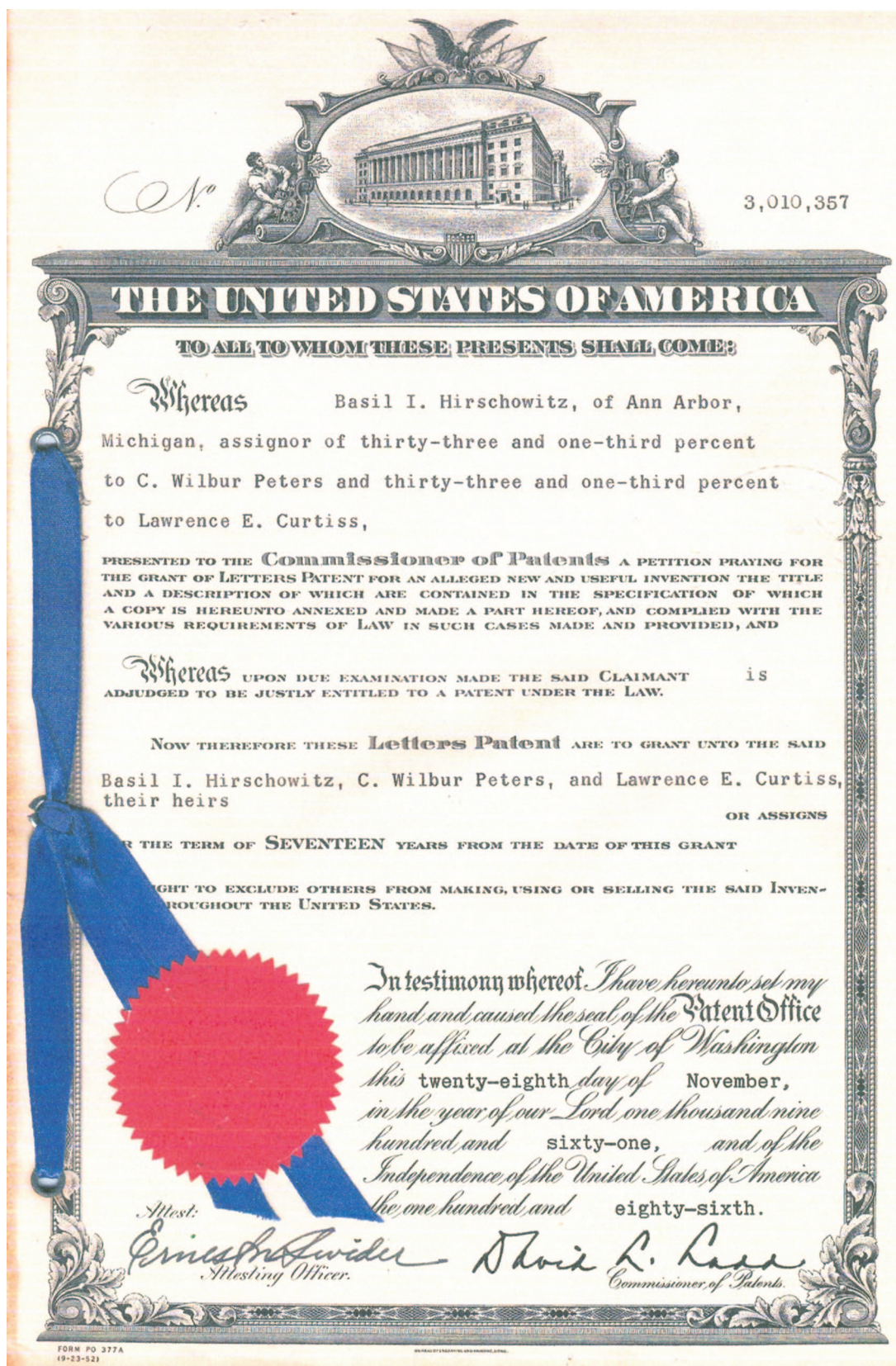


FIGURE 3. Photograph of the patent for the Hirschowitz fibroscope given to Drs. Curtis, Peters, and Hirschowitz in 1961.

Incorporated (ACMI), who had attended the Lake Placid meeting. The first fibroscope was produced in October 1960 by ACMI and used on a patient. The Hirschowitz fibroscope was ultimately produced and results on its use published in *Lancet* in May of 1961 (Figure 2).² Subsequently, Japanese manufacturers came to the scene and by the late 1960s the field of fiberoptic endoscopy was dominated not by ACMI but by contenders such as Olympus. A patent for the endoscope was given to Drs. Curtis, Hirschowitz, and Peters in 1961 (Figure 3).

Dr. Hirschowitz then went to Temple University, which had an established Gastroenterology Division led by Dr. Harry Shea. In the division was Dr. Komaroff, who was a student of gastric acid secretion under Dr. Pavlov in Russia. The study by Dr. Hirschowitz on gastric acid secretion continued in humans.

Around that time, a friend from The University of Michigan, Tom Payne, MD, was recruited to the University of Alabama at Birmingham to head the Infectious Disease Division and Department of Bacteriology. Dr. Payne commented to Dr. Tinsley Harrison, the current Chief of Medicine in 1957, regarding Dr. Hirschowitz. Approximately at the same time, Dr. Solly Marks, a visiting research scientist from South Africa, met a physician from Bessemer, Alabama, Dr. John McMahon, at a bar in San Francisco after an American Gastroenterology Association meeting. They commented that Dr. Hirschowitz would be an ideal person to come to Birmingham for a job, as the Department was looking for a gastroenterologist. Dr. Marks told Dr. Hirschowitz to send his application, which he did. The other physician competing for the job was Dr. J. Arnold Bergen, an inflammatory bowel disease expert from the Mayo Clinic in Rochester, Minnesota (subsequent Director of the Division there).

Dr. Hirschowitz was not recruited in 1958, as Dr. Dick Hill was first recruited as the Division Director of Endocrinology. The subsequent year, 1959, Dr. Hirschowitz was recruited by Dr. Tinsley Harrison and later, Dr. Walter Frommeyer to the University of Alabama at Birmingham as the first Division Director to start a Gastroenterology Division. Thus, the division was born.

The initial years as the Division Director were tumultuous. It must be remembered that this was 1960 in the precivil rights era. Indeed, physicians looking for jobs would specifically place in their ad that they would not interview in the South. Thus, the initial years of acquiring and growing a faculty were very difficult. The division was initially located in the basement of the Hillman building, but shortly thereafter the Lyons-Harrison building was erected and the division then moved there in 1960 where some faculty still reside.

The first endoscopy unit, where the first fiberoptic endoscopy was performed, was located in a small room adjacent to Dr. Hirschowitz' office (Figure 4). This was the endoscopy unit for the hospital as well as the Veteran's Administration Hospital, which was and continues to be an essential teaching component. Patients would be rolled across 19th Street to the endoscopy unit, rain or shine. Most endoscopies were performed with sedation, and after the procedure the patients would recover in the bed in which they were rolled to the endoscopy unit. Currently, this room is a small storeroom where coffee is made.

At the time that Dr. Hirschowitz started the Gastroenterology Division, there were only a few established Gastroenterology Divisions throughout the United States. These included Philadelphia, Chicago, Mayo Clinic, and Mt. Sinai in New York. A genre of physicians in the era of Dr. Hirschowitz then started the next group of divisions, such as Dr. John Galambos at Emory and Dr. John Sessions at North Carolina.

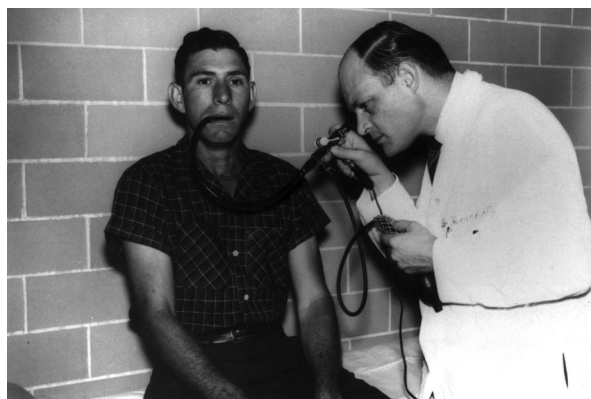


FIGURE 4. Dr. Hirschowitz performing a fiberoptic endoscopy in the first endoscopy suite.

Gastroenterology continued to be a nascent specialty at that time. For example, the 1954 American Gastroenterology Association meeting in San Francisco had 700 attendees, with only the first 2 rows of the auditorium reserved for the membership. In the 1950s, medical subspecialties began to develop: cardiology, endocrinology, and pulmonary to deal with the complications of tuberculosis. The advancement of endoscopy was the catapult, which further propelled gastroenterology as a subspecialty. In the early years, patients undergoing endoscopy were charged \$50, and the initial scopes could be purchased for \$1600. It was not until the 1970s, when endoscopic therapy could be performed that the subspecialty exploded in popularity. Before that time, attracting trainees for fellowship was difficult.

The University of Alabama at Birmingham was fortunate to have a number of remarkable leaders who coalesced simultaneously: Drs. Joe Volker, Champ Lyons, Tinsley Harrison, and subsequently John Kirklin. Lister Hill, an Alabama senator, was the cousin of Champ Lyons. He was a true champion for The University of Alabama at Birmingham, and



FIGURE 5. Dr. Basil Hirschowitz in the physiology laboratory.



FIGURE 6. University of Alabama at Birmingham Gastrointestinal Division in the early 1970s.

his influence in Washington provided the much-needed cash to help the institution rapidly grow. The recruitment of John Kirklin solidified the up-and-coming image of The University of Alabama at Birmingham, which then developed a critical mass and provided momentum for the future. At that time, space was available and opportunity abounded. One could fulfill one's own dreams, given the unparalleled and unbridled potential opportunities.

The expertise in gastrointestinal physiology, specifically gastric acid secretion, as well as the novelty of the endoscope, brought many physicians to Birmingham to visit and learn from Dr. Hirschowitz (Figure 5). He has trained numerous physicians and touched countless lives through his research.

The division continued to grow in the early years. Although at today's standards at a snail's pace primarily because Gastroenterology was indeed a new specialty (Figure 6). Dr. Charles Elson was recruited in 1989 as the second Division Director (Figure 7). His efforts continued to grow the division until 2001, when the directorship of the Division was given to Dr. C. Mel Wilcox, current Division Director. As noted earlier, there are very few Divisions of Gastroenterology in the United States, which have a 50-year history and have made such unique and important contributions to the specialty. Through Dr. Hirschowitz, a tradition of excellence in clinical care, teaching, and research was fostered and continues until now.

To celebrate this event, I have invited 3 distinguished gastroenterologists with previous ties to The University of Alabama at Birmingham and Dr. Hirschowitz. First, Dr. Joel Richter, an internationally recognized expert on esophageal disease, was previously at The University of Alabama at Birmingham as the Director of Clinical Research and the Esophageal Laboratory in the 1980s. He is currently the Chief of Medicine at Temple University. Second, Dr. Angel Lanas,

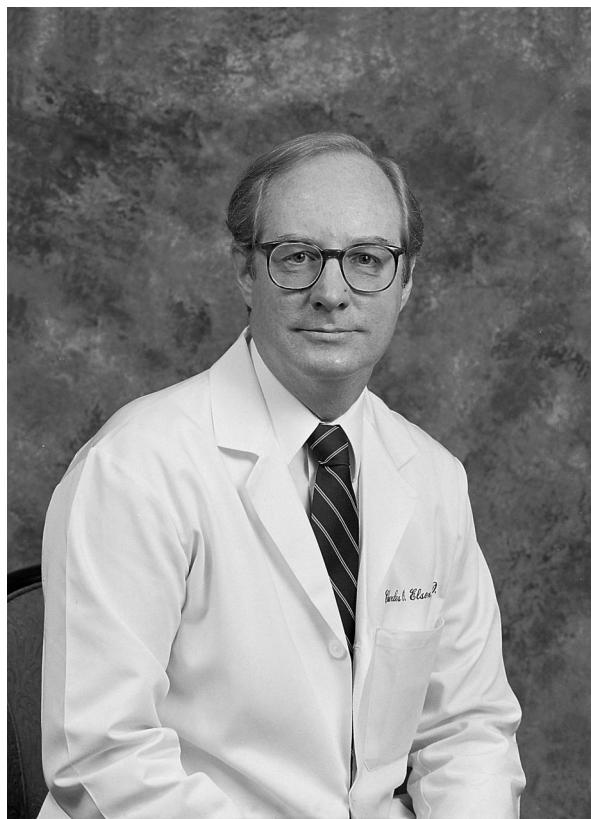


FIGURE 7. Dr. Charles Elson when recruited as the second Division Director in 1989.

Professor of Medicine at Zaragoza, Spain, traveled to The University of Alabama at Birmingham and worked with Dr. Hirschowitz for several years on clinical issues related to nonsteroidal antiinflammatory drugs. Some of the observations they made were pivotal to our understanding of erosive gastrointestinal disease. Finally, Dr. Donald Powell, a native of Alabama, worked with Dr. Hirschowitz from the summer before he entered the medical school in 1959 until he graduated here in 1963. Since then he has climbed the academic ladder and is currently the Chief of Gastroenterology at the University of Texas Medical Branch in Galveston. Before assuming that role, he was the Chief of Medicine at that institution. I hope these articles underscore and reflect the mentorship of Dr. Basil Hirschowitz and highlight the many lives he has touched.

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2. Hirschowitz BI. Endoscopic examination of the stomach and duodenal cap with the Fiberscope. *Lancet* 1961;1:1074–8.

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