

# HINDSIGHT

Newsletter of the  
Optometric Historical Society  
243 North Lindbergh Boulevard, St. Louis, Missouri 63141, USA

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## Annual OHS meeting and OHS Board meeting:

The annual meeting of the Optometric Historical Society will be held on Saturday, December 14, 2002, from 10:00 to 11:00 am in the Columbia 3 Room at the San Diego Marriott where the annual meeting of the American Academy of Optometry is being held. Dr. Walter Chase will be speaking on, "The American Academy of Optometry's *Living History* History." Dr. Chase has been working on the Living History project for several years.

The OHS Board will meet on Saturday, December 14, 2002, from 7:00 to 8:00 am. The location of the meeting will be determined on site at the meeting of the American Academy of Optometry. Please contact Walter Chase for the location of the Board meeting. All OHS members are welcome to attend the Board meeting.

## Important 20<sup>th</sup> Century Ophthalmic Books:

Physicians H. Stanley Thompson and Donald L. Blanchard wrote in the May, 2001 issue of *Archives of Ophthalmology* about "One hundred important 20<sup>th</sup>-century ophthalmic books" (volume 119, number 5, pages 761-763). They provided a list of the 100 books they considered to be the most important, in that the books made significant contributions to ophthalmic knowledge or practice. They included some books published in the last part of the nineteenth century if they had a very high impact on twentieth century ophthalmic practice. Thompson and Blanchard noted that they "had to make some coin-toss decisions about rounding out the collection to exactly 100 titles," and they recognized that "the mere act of providing such a list is to ask for dissent and disparagement."

The authors stated that they received some input from other persons, but that the list was their own personal list, tilted toward their American experience. By my count, nine of the books were published in German, three in French, one in Spanish, and the remainder in English.

Thompson and Blanchard divided the list into eleven ophthalmological subspecialty areas. These areas and the number of books listed under each are as follows:

General Ophthalmology, 13 books  
Cataract Surgery, 6 books  
Cornea and External Disease, 8 books  
Glaucoma, 9 books  
Neuro-ophthalmology, 11 books  
Optics and Refraction, 5 books  
Pediatric Ophthalmology, 7 books  
Hereditary Ocular Disease, 5 books  
Retina and Vitreous, 9 books  
Oculoplastic Surgery, 14 books  
Ocular Anatomy and Pathology, 13 books

Listed under Optics and Refraction were the following five books:

Jackson E. *Skiascopy and Its Practical Applications*. 1895.  
Gullstrand A. *Monochromatische Aberrationen*. 1900.  
Obrig T. *Contact Lenses*. 1942.  
Mandell R. *Contact Lens Practice*. 1965.  
Milder B, Rubin M. *The Fine Art of Prescribing Glasses Without Making a Spectacle of Yourself*. 1979.

The following were the seven books listed under Pediatric Ophthalmology:

Maddox E. *Tests and Studies of Ocular Muscles*. 1898.  
Worth C. *Squint*. 1903.  
Howe L. *The Muscles of the Eye*. 1907-1908.  
Peter LC. *The Extra-Ocular Muscles*. 1927.  
Bielschowsky A. *Lectures on Motor Anomalies*. 1940.  
Scobee R. *The Oculorotary Muscles*. 1947.  
Burian H, von Noorden G. *Binocular Vision and Ocular Motility*. 1974.

Thompson and Blanchard have placed a 34-page document with the list of the 100 books and some comments about each of them on the internet (<http://webeye.ophth.uiowa.edu/dept/20thCenturyBooks/100Books.htm>). For example, this entry for Jackson's famous book on retinoscopy can be found on pages 20 to 21:

Jackson, Edward. *Skiascopy and its practical application*. Philadelphia, The Edwards & Docker Co. 1895.

"This book was a deliberate (and successful) effort to popularize the test that had been called 'the shadow test' (Cuignet, 1875) and is now called 'retinoscopy' (Thorington, 1897). The book was frequently reprinted in the first decades of the century. This technique used the doctor's observations rather than the patient's responses and it became an almost universal first step in estimating refractive error. Jackson encouraged full correction of ametropia. In 1887 Jackson had recommended a cross cylinder for estimating cylinder strength and only later did he realize how quickly and effectively the cross cylinder could be used to determine cylinder axis. In 1907 at the Colorado Ophthalmological Society, Jackson began to give instruction on the use of the cross cylinder, a handy test that made it possible, in the course of a simple

examination, to measure the power and the axis of the total astigmatism both corneal and lenticular. In some clinics automated refractometers are beginning to replace retinoscopy as a way to find a starting place for a refraction.”

Spurred by Thompson and Blanchard’s effort, Doug Penisten and I are hoping to compile a list of the most important 20<sup>th</sup> century *optometry* books. We would like your input and suggestions. Please take time to complete the enclosed survey and return to me at the address or fax number on the form. We will share the results of the survey in a future issue of *Hindsight*.

D.A.G.

### Jay Enoch’s Column:

The International Biography and Bibliography of Ophthalmologists and Vision Scientists, IBBO, by Jean-Paul Wayenborgh, with the cooperation of Saiichi Mishima and C. Richard Keeler. A part of the Hirschberg History of Ophthalmology Series: The Monographs, Volume VII, 2001: In Three Parts (really volumes): Part I, A-K (2001); Part 2, L-Z (2002); Part 3, A-Z (to be published in 2004, includes omissions, A-Z). J.P. Wayenborgh, Publisher, Postbus 96, B-8400 Oostende-3, Belgium. (The writer finds no ISBN number)

Important additions to the ophthalmic history literature were recently published by Jean-Paul Wayenborgh of Belgium. Wayenborgh creates his own acronym, IBBO, for *The International Biography and Bibliography of Ophthalmologists and Vision Scientists*. In many cases, these tomes contain not readily obtained information about those listed as actively participating in ophthalmic science and ophthalmology. Included are relatively brief but generally carefully prepared summaries of careers, and details of notable contributions made by those listed in both areas selected for treatment, ophthalmology and vision science. References to important papers are particularly valuable if one seeks added insights as to the person and his/her career. The American Encyclopedia of Ophthalmology is a major source of the bio-sketches.

Not surprisingly in so massive a work, there are omissions and a number of rather uneven treatments. As examples, Bernard Becker is not included (he has contributed important research on glaucoma and ocular transport and made many meaningful contributions to ophthalmology and its history). His predecessors in St. Louis, the Post family, are quite well represented. Robert Shaffer, another glaucoma great, is omitted. And, there is a rather short treatment of Hans Goldmann (and a poor photograph of him). Goldmann was a giant in twentieth century ophthalmology (a brief report on him was recently presented in this column). Also missing are Goldmann’s distinguished students Franz Fankhauser (Berne, known for his creation on the Octopus perimeter system and laser therapy for secondary cataract quite commonly encountered following ECCE) and Baldur Gloor (who served as Dean of the Medical School and Chair of Ophthalmology at both Basel and Zurich – he contributed

meaningfully to studies of vitreous, glaucoma and perimetry). Bruno Bagolini, inventor of the lens of the same name, and former Chair of Ophthalmology at Modena and at the Vatican Medical School is omitted, as is his student (and mine) Emilio Campos, a distinguished strabismologist and Chair at the University of Bologna. Professors William Rushton, Giles Brindley, Horace Barlow, Fergus Campbell, and others of the stellar vision research group at Cambridge are not listed, as well as Walter Stanley Stiles and Brian Crawford of the National Physical Laboratory in Teddington (UK). Because of such lapses and inconsistencies, IBBO, Part 3 is to be added in 2004.

A modest number of optometric scholars are written up in these volumes. They include Mat Alpern, Jay Enoch, Irving Fatt, Edgar Fincham, Tom Freddo, Brien Holden, Gerald Westheimer, and no doubt a number of others. An exhaustive search was not attempted. A number of added optometric participants are mentioned in these individual biographical sketches. Once again, one finds omissions of biographies, for example, Glenn Fry and Meredith Morgan are not listed – nor the second Fincham brother, nor Charles Prentice and so forth. While one can be highly critical of this feature, this is not a review of optometry, *per se*. Where a listing exists, optometry entries are treated fairly and in no way in a lesser manner than other entries in this set of volumes. Reading my own entry, some items are not correctly stated/ordered, there is a misspelling, and some major contributions are omitted. However, this was clearly not intentional, and sincere effort was made in the treatment. It is pity that for the listed living, prior review was not sought (as is done by Who's Who ...).

The writer's perception is that these books are a very valuable resource for those performing ophthalmic history research and, at least, they should be added to pertinent libraries in the field. These volumes serve as a good starting point in analyses and investigations.

J.M.E.

#### More on Wayenborgh books:

OHS member Jean-Paul Wayenborgh is the publisher of a number of other ophthalmology history books in addition to those reviewed here by Jay Enoch. On the J.P.Wayenborgh Publishing website there is a short biographical sketch of Wayenborgh written by Norman B. Medow and originally published in the March 15, 2000 issue of *Ophthalmology Times*. Wayenborgh was born in France, raised in Belgium, and learned the antiquarian book business in Germany. In 1961, he began an antique business, and in the 1970s he started in the publishing business with the periodical *Historia Ophthalmologica Internationalis*. In 1978, Wayenborgh Publishing produced the three-volume work *Atlas on the History of Spectacles*, written by Wayenborgh under the pseudonym W. Poulet.

Among the ophthalmology history items published by J.P.Wayenborgh Publishing is the approximately 21-volume set *The History of Ophthalmology*, by Julius Hirschberg

and translated into English by Fred Blodi. A listing of and details on these and other books from J.P. Wayenborgh Publishing can be found on the world wide web at [www.history-ophthalmology.com/index.html](http://www.history-ophthalmology.com/index.html).

Additional information about the *International Biography and Bibliography of Ophthalmologists and Vision Scientists* (IBBO) set of books can be found at [www.history-ophthalmology.com/ibbow.html](http://www.history-ophthalmology.com/ibbow.html). The submission of material for possible inclusion in part 3 of IBBO is welcomed. Information can be submitted at the web site above or at [www.optiker.at/wayenborgh/formular\\_w.htm](http://www.optiker.at/wayenborgh/formular_w.htm).

D.A.G.

### Book featuring telescopes in the Luxottica Museum:

In View: The Telescopes of the Luxottica Museum, edited by Marisa Del Vecchio, translated from the Italian by Rodney de Souza, Milan: Luxottica, 1995, 125 pages, hardcover, oversize (9 1/2 x 13").

OHS Irving Bennett sent me this book for review in Hindsight. It is arranged into six sections: (1) Preface, (2) A Brief History of the Telescope, (3) The Collection – Centuries XVII – XVIII, (4) Anthology, (5) The Collection – Centuries XVIII – XX, and (6) Appendix – The Instruments and their Makers. Text is printed in both Italian and English.

The Preface discusses the development of the collection in the Luxottica Museum. Luxottica started purchasing items in 1980, and in 1991 opened their museum, celebrating the 30<sup>th</sup> anniversary of the company. In the late 1980s they made their largest purchase – a collection of some 1200 items from Genoese optician Fritz Rathschüler. Rathschüler was born in Graz, Austria, in 1902. He moved to Italy in 1921 and he started an optical company in Genoa in 1927. His collection included spectacles and various optical instruments. All of the telescopes described in this book were from Rathschüler's collection.

The second section is a brief history of the telescope. The true inventor of the telescope is not known for certain. Most accepted as the inventor is the Dutch optician Hans Lippershey. This is based on documentation that Lippershey applied on October 2, 1608 to the Dutch government for the sole right to make new instruments "to see from a distance." Two days later a government committee examined the instrument and on the 6<sup>th</sup> they paid Lippershey 900 florins for his invention. In 1609 upon hearing of this invention, Galileo Galilei constructed a telescope of his own and turned it toward the heavens. In 1610, Galileo presented some of his first observations in his book *Sidereus Nuncius* (The Starry Messenger). In 1611 Johannes Kepler correctly described the workings of a telescope, and proposed a different combination of lenses than in the Galilean telescope.

Several persons are notable for building telescopes and improving their quality in the 17<sup>th</sup> and 18<sup>th</sup> centuries. These included Francesco Fontana (1590-1656), Johannes Wiesel (1583-1662), Christian Huygens (1629-1695), Johannes Hevelius (1611-1687), Geminiano Monanari (1633-1687), Eustachio Divini (1610-1685), Giuseppe Campini (1635-1715), William Gascoigne (1612-1644), Cornelio Malvasia (1603-1664), Adrien Auzout (1640-1691), John Dollond (1706-1761), Peter Dollond (1731-1820), and Jesse Ramsden (1735-1800).

A Scotsman, James Gregory (1638-1675), was apparently the first person to suggest using a mirror instead of a lens to reduce aberration effects. In 1668, Isaac Newton (1642-1727) constructed a telescope containing two mirrors. An achromatic lens system was introduced into the telescope in 1758 by English optician John Dollond. Because of this lens system, his son, Peter Dollond, was the dominant telescope manufacturer in the late 18<sup>th</sup> century. "Buyers of his telescopes include Captain Cook, Leopold Mozart – father of Wolfgang Amadeus, Thomas Jefferson, the president of the United States, the king of Poland, the novelist Horace Walpole, and admiral Nelson, who at Trafalgar, sighted the enemy fleet through Dollond's achromatic lenses." Jesse Ramsden, the noted 18<sup>th</sup> century scientific instrument maker, went into association with Dollond, married Dollond's younger sister, and incorporated Dollond's achromatic lens systems in his telescopes.

In the early 19<sup>th</sup> century improvements in glass making by Pierre-Louis Guinand in association with Joseph von Utzschneider, Joseph von Fraunhofer, and Georg Friedrich von Reichenbach led to significant improvement in the quality of telescopes. Fraunhofer's student, Georg Merz, took over their factory when Utzschneider died in 1839 (Fraunhofer having died earlier in 1826). In 1846, Carl Zeiss set up shop in Jena, and was assisted by the glassmaking studies of colleagues Ernst Abbe and Otto Schott. Notable 19<sup>th</sup> century Italian telescope makers were Giovan Battista Amici, an engineer, mathematician, astronomer, and optician, who died in 1863, Ignazio Porro, Angelo Salmoiraghi. Porro's contributions "include the 'anallatic' telescope – a system of lenses with varying focal lengths (the modern zoom), and a system of prisms to correct images in telescopes and binoculars, which is still known as the 'Porro vehicle'."

The third section of the book consists of photographs of 17<sup>th</sup> and 18<sup>th</sup> century telescopes from the Luxottica collection. Fifteen telescopes are pictured, with two facing pages being devoted to most of the photographs. Most of these telescopes were manufactured in Italy, with telescopes from England, France, and China also being represented. Most of the telescopes are of paperboard construction decorated with inscribed leather or paper covering. Some were made by the noted manufacturer Giuseppe Campini.

The fourth section is an anthology of four writings illustrating the excitement and fascination for images viewed through a telescope. The first of these is a letter from Galileo to Antonio de' Medici dated January 7, 1610. In the letter Galileo describes the observations he made when he trained his telescope on the face of the moon. The second selection is from the 19<sup>th</sup> century Spanish novel *La Regenta* written by Leopoldo

Alas under the pseudonym Clarin. This novel's main character climbs up the cathedral bell tower and looks over the town with a telescope. The third selection, from the novel *The Illuminated Windows* by Austrian writer Heimito von Doderer, is about a bureaucrat who looks over the city of Vienna with his telescope at night. The fourth and final selection in the anthology portion of the book is from *One Hundred Years of Solitude* by Gabriel García Márquez. This story tells of the visits of a band of gypsies to a village where they bartered magnets, allowed people to view through a telescope (for a price), and demonstrated a magnifying glass. To sell looks through the telescope, one of the gypsies announced, "Science has eliminated distance. In a short time, man will be able to see what is happening in any place in the world without leaving his own house."

The fifth section of the book presents photographs of 18<sup>th</sup> to 20<sup>th</sup> century telescopes from the Luxottica collection. Most of these are from the 18<sup>th</sup> century. Two of the telescopes pictured here were wood and brass telescopes made in London by Dollond, one from the late 18<sup>th</sup> century and one from the early 19<sup>th</sup> century. The one 20<sup>th</sup> century telescope shown was a metal telescope covered in leather made in Milan by Salmoiraghi. Nineteen telescopes are pictured in this section, again with most of them shown on two facing pages. Photography is excellent.

The final section of the book consists of five pages of technical notes on eleven of the telescopes which were pictured in the book and three pages of short biographical notes on some of the persons involved in telescope development and manufacture. The book is enjoyable to read and visually appealing.

D.A.G.

#### Query from John Schoen:

In a letter dated August 24, 2002, OHS member John N. Schoen wrote: "A colleague recently sent me a pair of glasses which were bifocals such as I've never seen before.

"The segment compared to a Univis B, about 9 mm vertically by 24 mm horizontally, but was a countersunk 'seg.' The frame of these glasses was, in my estimation, about 75 years old.

"Can you shed any light on the dates such segs were used? And who made them? And any other information that you may be able to provide.

"The colleague, who is Dr. Charles Schoen of Belvidere, Illinois – and I will be grateful for any light you can shed on this mysterious segment construction."

Can any of our readers answer this query?

D.A.G.

More on votives:

OHS member Jerry Abrams wrote: "To add to the 'votive' article in the last issue of Hindsight, John and Val Tull gave out to each member of the Ocular Heritage Society at a recent meeting small metal votives." Jerry enclosed a copy of a paragraph from the Tulls that accompanied these votives:

"Milagros are tiny metal votive offerings found in churches in Mexico and Latin America. They are pinned on wooden statues of saints, the Virgin Mary or of Christ. Milagros can be found in a myriad of shapes, including eyes, arms, legs and other body parts. They are left to remind the saints of the person's prayers. Also, they can be left by faithful petitioners in thanks for answered prayers."

D.A.G.

Membership Directory:

It has been some time since we published an Optometric Historical Society membership list. Such a list follows. Corrections and address changes should be directed to: Bridget Kowalczyk, OHS Secretary-Treasurer, International Library, Archives, and Museum of Optometry, 243 North Lindbergh Boulevard, St. Louis, MO 63141. Please inform possibly interested persons not on this list about OHS or consider giving them a gift membership to OHS. Annual dues, \$10 payable to the Optometric Historical Society, should be sent to the Secretary-Treasurer at the address above.

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## Papers from the other OHS:

The Ocular Heritage Society met in Sturbridge, Massachusetts, in May of 2002. The meeting included some paper presentations, and photocopied print versions of these papers were distributed to the society's membership. The following are summaries of these papers.

*Medallic Remembrances of von Helmholtz, by Jay M. Galst:* Galst reviews medals received by Helmholtz, medallic portraits of Helmholtz, and some medals named for Helmholtz. The great physicist and physiologist Hermann von Helmholtz (1821-1894) was noted, among other things, for his researches and books on vision and the invention of the ophthalmoscope. Helmholtz received the first von Graefe Gold Medal from the Heidelberg Ophthalmological Society in 1886. This prestigious award is given out every ten years. The presentation to Helmholtz was made by F. C. Donders on August 9, 1886.

In 1894, the commemorative medal of the sixty-sixth congress of German Naturalists and Physicians was created in Helmholtz's memory and featured a portrait bust of him. He was scheduled to speak at the meeting but died suddenly before it. A bust of Helmholtz was also on a 1907 bronze medal produced for the VIIth International Physiology Congress held in Heidelberg. Busts of Helmholtz and Albrecht von Graefe were on a souvenir badge medal from the XXth International Congress of Ophthalmology held in Munich in 1966. In 1968 the European Ophthalmological Society started awarding the von Helmholtz Medal to European ophthalmologists who had done the most for their society and profession. Additional medals depicting Helmholtz are a 1972 medal created by the Medical Heritage Society as part of a "Great Men of Science" series; a commemorative medal from Deutsches Museum, a science museum in Munich, issued in the 1970s; a von Graefe Prize medal established in East Germany in 1975; a medal for the 125<sup>th</sup> anniversary of the German Ophthalmological Society in 1982; and a medal from the Cogan Ophthalmic History Society symposium held on the 150<sup>th</sup> anniversary of the ophthalmoscope. Galst noted that the "finest style art work seems to have occurred at the end of the 19<sup>th</sup> century. The style of the later pieces is cruder and not of the same quality as in the earlier pieces."

*Chronology of American Optical History, by Dick Whitney:* Distributed to the membership was a two-page single-spaced fine print chronological listing of significant events in the history of the American Optical Company. It begins with events in antecedent companies (William Beecher, R. H. Cole) in the early 19<sup>th</sup> century and extends to the closing of AO's Southbridge Warehouse in 2001 and the consolidation of AO and SOLA distribution centers in 2001. The American Optical Company was formed on February 26, 1869. By 1886, it had sold over 1.3 million pairs of spectacles. By 1907, AO had 2000 employees with a payroll of a million dollars. Kryptok bifocals were first manufactured in 1910. In 1943, AO provided 14 million prescription eyeglasses to the Armed Forces while still filling civilian orders. In 1952, the glass Executive bifocal was introduced. In 1983, the AO Museum opened in Southbridge with John Young as curator.

*Leather Spectacles, by Charles Letocha:* The first reference to leather spectacles is said to have been in 1420. Leather spectacles were depicted in a portrait painted in 1562/3. Daza de Valdes described leather spectacles as “agreeable to wear” in 1623. The *Book of Trades* by Hans Sachs, published in 1568, includes an illustration of a spectacle maker working with leather. Letocha states that production of leather spectacles appears to have ended by the last quarter of the 18<sup>th</sup> century.

The material for leather spectacles was probably either raw hide or tanned leather, almost always from cattle. After tanning or processing, the leather was soaked in water to make it pliable for cutting into shape. The lenses were then inserted, and after the leather dried, it was waxed, varnished, or lacquered.

*Thomas Colledge, by James G. Ravin (Ravin JG. Thomas Colledge – A Pioneering British Eye Surgeon in China. Arch Ophthalmol 2001; 119:1530-1532):* Thomas Richardson Colledge (1796-1879) was an English physician who served as a medical missionary on the island of Macao (off the south coast of mainland China) from 1827 to 1838. He established the first institution to offer Western medical care in Macao. Most of his effort was devoted to eye care. Very few surgical procedures were done in China at the time. Cataract surgery by couching was one of the most common surgeries performed by missionary physicians. Life as a missionary was difficult and unhealthy. Four of Colledge’s five children died in China. Colledge returned to England in 1838, and for most of the rest of his life practiced medicine in Cheltenham, England.

*American Temple Spectacles of the Nineteenth Century, by Alan McBrayer:* Temple spectacles were spectacles with short temples that ended at rested upon the temples of the wearer. Temple spectacle frames were usually metal and the temples often ended in rings that increased the surface area in contact with the temple area of the wearer. Advertisements for temple spectacles were common in the last half of the eighteenth century. McBrayer noted that, “American inventors revived the idea of the temple spectacle with a series of patents during the last half of the nineteenth century. The primary impetus behind most of these patents was the desire to design a compact style of spectacles that could be carried in the vest or watch pocket.” McBrayer discusses American patents on temple spectacles extending from 1859 to 1889. They included features such as a folding bridge, a spring steel bridge, a spiral coil in the temple wire, spring steel near the joints of the frame, rubber bulbs at the ends of the temples, combination pince-nez/temple spectacle construction, a bridge hinge that would fold either way, short curved spring temples, springs to press the temples in against the head, and curved temples ending in a flange with replaceable pads.

McBrayer observed that, “None of the patents discussed above had widespread use or popularity, and most were probably not commercially manufactured. A person desiring a compact pair of glasses could choose from a myriad of folding pince-nez, and it is probable that this factor more than any other limited the appeal of the temple spectacle designs.”

*Southbridge and its Origins, by Margaret Morrissey:* Southbridge, Massachusetts was incorporated in 1815. The industry most associated with the town has been optical

manufacturing. The author noted that the Wells family, which ran the American Optical Company for many years, "...has played an important role in the life of this community: during the 1930s, the town was cushioned from the effects of the depression due to the careful planning of the local company all the workers were offered employment providing enough for families to live on. To this day the Wells Foundation supports many local non-profit organizations..."

*The Badianus Manuscript, by Andrew P. Ferry:* The Badianus Manuscript is a book on herbal treatment of disease completed in 1552 by two Aztec Indians, Martinus de la Cruz, a native physician, and Juannes Badinanus, the translator into Latin. Of the 118 plates in the book, seven deal with ocular disease and the plants used for treatment. It is perhaps the first book written in North America with the inclusion of ocular disease treatment.

*Kaleidoscopes – Historical to Contemporary, by John W. Tull:* Credit for invention of the kaleidoscope goes to Sir David Brewster, who was born in Scotland in 1781 and who was remarkable scholar and a prodigious writer. Among Brewster's scientific studies were optics and the development of scientific instruments. Books he published include a book on the stereoscope and one on the kaleidoscope.

Others before Brewster used mirrors and reflective materials to view fascinating images, but it was Brewster who first enclosed the mirrors within a cylinder and mounted colorful pieces of material in a casing next to the mirrors. He gave the name kaleidoscope to the device. Brewster's book on kaleidoscopes was published in 1816, and in 1817 he patented his kaleidoscope.

The earliest known kaleidoscope made in the United States dates back to 1818. A patent for a kaleidoscope was issued to Charles Bush of Providence, Rhode Island, in 1873. It was this kaleidoscope that popularized kaleidoscopes in the United States.

In the construction of a kaleidoscope, front-surface mirrors must be used and the mirrors must be placed at exactly the same angles. There are different types of kaleidoscopes, featuring differences in the numbers of mirrors, differences in the tumbling objects, and differences in the object cells which hold the tumbling objects.

During the Victorian Era, kaleidoscopes were popular among adults as a parlor entertainment. In the mid-twentieth century, kaleidoscopes were largely considered children's toys. Perhaps the leading maker of kaleidoscopes during this time was the Steven Manufacturing Company, a toy company begun in 1946.

In the late twentieth century there seemed to be resurgence of interest in kaleidoscopes. The Smithsonian magazine published an article on kaleidoscopes in 1982. The Brewster Society, an organization of kaleidoscope collectors and artists who make them, was formed in the late twentieth century.

*Edward W. D. Norton and the Mary & Edward Norton Library, by Reva Hurtes:* Edward W. D. Norton (1922-1994) was the first administrator of the Bascom Palmer Eye Institute at the University of Miami medical school. The Mary & Edward Norton Library

is the Bascom Palmer Eye Institute Library and is a branch of the University of Miami School of Medicine Library. In 1962, the ophthalmological holdings of the medical library were moved to the eye institute. At that time, the author was hired by Norton with the mandate "...to make this collection the finest in the world, as well as a repository for all ophthalmological literature." Norton's passion for this library is described in this paper. Norton actively solicited funds for the library, searched used book stores for acquisitions for the library, and purchased some large private book collections. In 1987, the library was formally dedicated as the Mary & Edward Norton Library.

D.A.G.

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