HINDSIGHT: Journal of Optometry History
April, 2011
Volume 42, Number 2

Editor:
David A. Goss, School of Optometry, Indiana University, Bloomington, IN 47405, dgoss@indiana.edu

Contributing Editors:
Jay M. Enoch, 5537 106th Avenue NE, Kirkland, WA 98033-7413, jmenoch@berkeley.edu
Irving Bennett, 5551 Dunrobin Drive, #4208, Sarasota, FL 34231, or 3307 Seventh Avenue, Beaver Falls, PA 15010, irvbennett23@gmail.com

TABLE OF CONTENTS

Journal subscriptions are registered by joining the Optometric Historical Society. The cost of an institutional or library subscription is the same as for personal membership.

Manuscripts submitted for publication should be sent to the Editor at the email or postal address above. A Word document attached to an email message is the preferred means of submission. Paper copy submissions sent by postal service will also be considered.

OHS News

Optometric Historical Society

Affiliated with Optometric Cares – the AOA Foundation
243 North Lindbergh Blvd.
St. Louis, MO 34231
Tel: 800/365-2219, ext. 4102

Your OHS is alive and, thanks to you, is doing quite well. This is a short update on what is transpiring.

REMINISCE-IN AT ACADEMY MEETING: We held our annual Reminisce-IN on November 19, 2010 in San Francisco at the American Academy of Optometry's Annual Meeting. The speaker was Dr. Alden N. Haffner, former President of the SUNY College of Optometry and currently a member of the OHS Board of Directors. His topic was "*The Ups and Downs of Optometry's Relationship with Organized Medicine and Organized Ophthalmology.*" The audience appreciated the stimulating and informative presentation. A copy appears in the January 2011 issue of HINDSIGHT (Volume 42, Number 1).

NEXT REMINISCE-IN TO BE HELD IN BOSTON: We have scheduled the next Reminisce-IN to be held in conjunction with the annual meeting of the American Academy of Optometry, Boston, October 12-15 in the John B Hynes Veterans Memorial Convention Center. The topic and the speaker will be announced soon.

RELATIONSHIP WITH OPTOMETRY CARES: This is the second year that the Optometric Historical Society has functioned under the AOA Foundation – Optometry Cares. The Administrative Director of the foundation (Shannon Torbett) has resigned he position and the person now assigned to help OHS is Ms. Linda Draper, archivist for the AOA Museum and Library. Ms. Draper has already straightened out our membership list and has collated our finances under a new account that will permit us to avoid the service charges we had formerly had. Linda can be reached at the address and telephone number on this letterhead.

HISTORICAL GEMS ON WEBSITE: An arrangement has been made with the AOA to carry notices in its popular weekday e-letter "*First Look"* about historical gems as they become available. The last Gem was published in May. It dealt with the time Fidel Castro assumed power in Cuba and the USA took in many Cuban exiles including a substantial number of optometrists. If you did not read that story go to http:/bit.ly/k3myDh or contact our St. Louis office for a copy. The Gem was authored by Dr. Emanuel Pushkin of Florida. Dr. Pushkin was, more than any other American OD, involved in this part of optometric history.

FUTURE ARTICLES IN THE WORKS: We are currently putting together a four part series of Gems dealing with the AOA 1954 Seattle Congress resolutions that led to the actions by the American Medical Association that declared it unethical for medical doctors to lecture to or collaborate with optometrists, etc. The third article of this series will discuss the Cyrus Bass class action lawsuit against the AMA; the final piece will report on the little-known involvement by the AOA with the Department of Justice that occurred concurrently.

VOTE ON BY-LAWS AMENDMENT TO INCREASE NUMBER OF BOARD MEMBERS: The proposition to amend the by-laws (Article IV, Section 1) to increase the number of members on the Executive Board from seven to nine was approved by a 37-2 vote. A significant number of nominations for Board positions to begin January, 2012, have been received. A ballot for those Board positions will be mailed out with a future issue of Hindsight.

PLEASE ENCOURAGE COLLEAGUES TO JOIN: Your Optometric Historical Society still needs members who are interested in gathering and preserving optometric history. We respectfully ask that you encourage those you know who are optometric history buffs to join. We would also like to increase the numbers of young members, so please encourage membership among who are still in practice or still working. Please write to me with your suggestions at irvbennett23@gmail.com.

Irving Bennett, O.D., OHS President

Expanding the Scope of Practice for Optometry: Albert Fitch's Efforts in 1937

Irving Bennett, O.D.
5551 Dunrobin Drive, #4208, Sarasota, FL 34231, irvbennett23@gmail.com

The very first concerted attempt to increase the scope of practice of optometry by passing a state law that would permit optometrists to use both diagnostic and therapeutic pharmaceutical agents occurred in 1937 in Pennsylvania. Yes, 1937, some 39 years before the State of West Virginia passed its therapeutic pharmaceutical agent (TPA) law and 34 years before the State of Rhode Island passed its diagnostic pharmaceutical agent (DPA) legislation. It should be noted that the first successful efforts to get DPA and TPA laws for optometry were those adopted in Rhode Island and in West Virginia.

The effort to increase the profession's scope of practice in 1937 was headed by Albert Fitch, the founder and first president of the Pennsylvania State College of Optometry, later named the Pennsylvania College of Optometry. Fitch was a forceful, dynamic and enthusiastic advocate for extended privileges for optometrists and, according to many of his contemporaries, the most outstanding visionary for the profession of optometry.

Fitch's efforts with getting House Bill No. 1119 adopted by the Pennsylvania Legislature were chronicled in his autobiography.[1] Fitch had arranged to get the expanded privileges bill introduced by the administration, giving it a better chance for adoption. It was only through chicanery that the bill was defeated; the vote was 90 to 88, a margin of one vote.

The salient features of the legislation and the virtues of it were that it increased the required education of optometric students (as termed in the bill "specialized education") so that licensed optometrists would be fully trained to handle the diagnosis and treatment of eye diseases and conditions. Supporters of the legislation openly compared it with dentistry's struggle to separate itself from medicine some hundred years before.

As the path for adoption seemed clear, a last minute maneuver by the opposition did it in. In Fitch's words it went like this:

"After hearing our talks and those of the medical side, the Committee endorsed Bill No. 1119 and recommended its passage. The bill passed its first two readings almost unanimously in spite of the opposition of the medical group. On the third reading, when it appeared certain that the bill was destined to pass, the medical group resorted to a reprehensible trick to cause the defeat of the bill. A physician, a member of the Health and Sanitation Committee of the Legislature, posing as its chairman, made a

sobbing appeal to have the bill referred to his committee. He asked that this be done as a favor because otherwise it would appear as if a reflection were being cast on his committee. He said that this bill should have come to his committee in the first place instead of to the Committee on Education where it had been sent originally.

"He also said it would be different if his committee was opposed to the bill, but as a matter of fact this committee had been in favor of it from the very beginning. The physician made a solemn promise that if the bill was referred to his committee, it would be reported back the next day with a recommendation for its passage. He said all this knowing full well that his committee, which contained more physicians than any other committee in the legislature, was not in favor of the bill and that his promise would never be kept.

"This whole procedure was highly unusual; the most seasoned legislators could not recall anything like this ever happening before. We were told that some of our best friends among the legislators would vote to have the bill referred to the Health and Sanitation Committee because of the solemn promise of this physician member to report it back the following day. It so happened that this physician told a deliberate falsehood, as he really had no authority to speak for his committee. He was simply following orders of the medical lobby which would stoop to any dishonesty to defeat a bill which they oppose.

"However, in spite of the sobbing appeal, the untruthful statements and the false promise, the vote was close, ninety in favor of referring the bill eighty-eight opposed. As the reader can well imagine, this bill never came back to the floor for a final vote. Unfortunately, this was an administration bill, and since almost all such bills are sent to the floor for action late in the session, it was now too late for us to reintroduce the bill in this session of the Legislature."

Wolfberg[2] reviewed optometry's scope of practice expansion, and concerning Fitch's efforts, he noted that "this attempt to broaden the scope of optometric practice" continued after the defeat of the expanded scope of practice legislation. Wolfberg wrote: "For the two decades after the defeat of HB 1119 in Pennsylvania, Fitch continued his commitment to optometric education by expanding and improving bio-medical subjects such as anatomy, pathology, and pharmacology in the college's curriculum, and leading the country's academic community in lengthening the amount of time required to receive an O.D. degree. The success of those actions created a ripple effect; PCO graduates became increasingly frustrated, since they were licensed under antiquated practice acts and could not render professional services they had been educated and trained to provide. The impact these graduates had in many states in subsequent years was great."

As an aside it took until June 1958 for the Pennsylvania Optometric Association to vote in convention assembled to "institute the effort to amend the optometry act to permit the examination of the human eye without restriction as to method of procedure."

References

1. Fitch A. My Fifty Years in Optometry. Philadelphia: Pennsylvania State College of Optometry, 1959;2:337-355.

2. Wolfberg MD. A profession's commitment to increased public service: optometry's remarkable story. J Am Optom Assoc 1999;70:145-170.

Joseph Le Conte

Jay M. Enoch, O.D., Ph.D.
Professor of the Graduate School, Dean Emeritus, School of Optometry, University of California at Berkeley, Berkeley, CA 94720-2020;
Home: 5537 106th Avenue NE, Kirkland, WA 98033-7413; jmenoch@berkeley.edu

Editor's Note: *This article is reprinted from the December, 1983 issue of American Journal of Optometry and Physiological Optics (official publication of the American Academy of Optometry), volume 60, number 12, page 1003. It is reprinted here with the permission of Tony Adams, editor of Optometry and Vision Science (present-day official publication of the American Academy of Optometry), and the publisher of Optometry and Vision Science, Wolters Kluwer Health / Lippincott, Williams & Wilkins.*

Each year, the graduating students of the School of Optometry at the University of California, Berkeley, line up on the steps of the entrance to the John and Joseph Le Conte Building on our campus for their class picture, before marching to the commencement exercise. This has been a tradition of the School, which had its origin in the attic of that building in 1923.

A recent biography of Joseph Le Conte has been written by Lester Stephens,[1] who kindly sent a copy to me as Dean of the School. This fascinating book deals in large measure with the trials and tribulations of the Le Conte family in the South through the years preceding and during the Civil War, the movement west of two brothers, John and Joseph Le Conte, and their active participation in the early formation and development of the University of California in Berkeley. John Le Conte was a distinguished physicist who also served as an early president of the University. Joseph Le Conte, a natural scientist and a staunch supporter of environmental protection, served the University in an outstanding manner in a variety of fields. He played an enormous role in the early days of the formation of the national and state parks in the region, particularly, Yosemite National Park.

Joseph Le Conte's scholarly studies included not only the theory of evolution, but research and writing in the field of physiological optics. Le Conte was particularly interested in binocular vision and to some extent in visual perception. His biographer cites him as the author of the first book in English on physiological optics. In essence, it was contemporary with the work of Helmholtz. Joseph Le Conte's book, titled "Sight,"[2] was considered the preeminent book in physiological optics in this nation from 1881, the time of its first edition, well into the early part of the 20th century. Joseph Le Conte, through his dominant position in the University, and because of the interest in physiological optics he generated among faculty and students, may well have presaged the creation of our School of Optometry and the large group of distinguished investigators in physiological optics that are active here. Thus, it seems especially

fitting that we take our class pictures on the steps of the building that honors Le Conte not only because it was the cradle of the School, but because of his early contributions to the science of physiological optics, which after all is the basic science of optometry.

References

1. Stephens LD. Joseph Le Conte, Gentle Prophet of Evolution. Baton Rouge: Louisiana State University Press, 1982.

2. Le Conte J. Sight: An Explosion of the Principles of Monocular and Binocular Vision. New York: D. Appleton and Company, 1881.

Berkeley Alumni Create Prepaid Vision Care

John Fiorillo
University of California Berkeley, Berkeley, CA, jraf2_79@berkeley.edu

Editor's Note: *This is excerpted from Berkeley Optometry – A History by John Fiorillo, copyright The Regents of the University of California, November, 2010. This material is chapter 24 in the book, found on pages 285-289. It is reprinted with permission of the author.*

It was a novel idea, or at least one we had never heard before, when Dr. Dick Peters mentioned the notion of a group prepaid vision plan.
-Roy Brandreth, 2007

In the early 1950s, Richard Peters ('40, 1918-2008), Henry Peters ('38, 1916-2000), Bernhardt Thal ('48, 1917-99), Roy Brandreth ('53, born 1922), and other Bay Area optometrists were intrigued by a new challenge – offering insurable vision care in a manner similar to healthcare plans such as Blue Cross and Blue Shield. As early as 1952, some of these optometrists began meeting regularly to design a viable prepaid plan.

Brandreth joined the Contra Costa Counties Optometric Association upon his graduation in 1953, where he met the two Peters brothers:

"It was a novel idea, or at least one we had never heard before, when Dr. Dick Peters mentioned the notion of a group prepaid vision plan. He pointed out that companies or unions could purchase group prepaid health plans for … [their] members at a cost much lower than an individual could for the same services. And that the same concept could be applied to a prepaid vision plan. It sparked an evening of excitement and conversation…. Insurance companies had postulated that a prepaid vision plan involving optical products was not insurable but we thought the idea had great potential. It could also become a new source of patient referrals to the offices of society members….

"Several members of the Alameda Contra Costa Counties Optometric Society were extremely active in the profession, and [they] were the next recipients of Dick's idea. We invited three of them, Drs. Nathaniel West ['47], Marvin Poston ['39] and Harold McCartor, over the next three months, to subsequent meetings to discuss the idea…. We started leveraging our contacts in the profession, and two months later we had a larger group to discuss the proposal. Dr. Lester Fourness ['41], who was very active and prominent in the San Francisco Optometric Society, … was asked to join our group….

"We got down to working through how we might go about introducing our plan to business, union and industrial leaders in the area. And we talked about the support we would need from local optical laboratories to supply their materials at a set price reduction for our business…. Within weeks many in our group recommended bringing in Dr. Bernhardt 'Buzz' Thal, who agreed to help us with his close relationships with a local lab….[661]

Thal, who had the required expertise with optical labs, products, and management, recalled the initial years of planning:

"During the early days of formation and planning, the small group of us met so frequently that we half expected to find the door locks at our homes changed. Instead, we found understanding spouses who were able to feed a group of seven or eight breakfast, lunch or dinner at odd hours. The support we received from our families carried right over to the doctors in our optometry society. They ponied up money to finance the project initially and continued to pay monthly dues, even though there was no program, only a paper organization. I would judge that seventy percent of the doctors in the Alameda Contra Costa Counties Optometric Society supported this vision.[662]

By 1954, they persuaded the Alameda association to form a public relations program and a group insurance vision program. The association established the Community Vision Services program for the former and the Prepaid Vision Care Committee for the latter, with Thal as chair and Roy Brandreth, Richard Peters (association president in 1955), Marvin Poston, Nathaniel West, and Harold McCartor (a Hayward optometrist) as members. Philip Breck (an Oakland optometrist) served as consultant.

By June 1955, they were ready to make a formal proposal for the Alameda association to underwrite the plan. Thal announced that a special meeting would be held 'to discuss incorporation and steps necessary to inaugurate California Vision Services [CVS].'[663] The optometrists convened at the Emerson School in Oakland on June 28, with seventeen members in attendance:

"Mechanics of the Prepaid Vision Care Program … were explained by Henry Peters and Dr. Bernhard[t] Thal….

"The Joint Committee [Joint Council on Vision Care] of this association and Community Vision Services, known as the Prepaid Vision Care Committee of the Alameda Contra Costa Counties Optometric Association, was given a vote of confidence, and authorized to proceed in the name of the Association to make any agreements as may be deemed profitable to our body with reliable union groups."[664]

At the August 1955 meeting, seven members met at the offices of Henry Peters to continue discussions: Roy Brandreth, Allan Colt ('48), Richard Peters, Arthur Emmes (Alameda association president in 1956), George Bradley ('50), and Philip Breck. They

agreed to make a presentation of the CVS plan before the Metropolitan Bay Area Coordination Council.[665] Peters then informed the membership at the September meeting that 'Calif. Vision Services Program [was] approved conditional with representation of COA on Board of Directors….' Brandreth followed with a report that 'Drs. Les Fourness and Stan Paulsen [had been] added to [the] Board of Directors for California Vision Services. Also the plan to facilitate organization of California Vision Services to incorporate under section 9200 of [the business and] professional code initially with intent to eventually formulate under section 9201.[666]

On September 30, 1955, CVS filed Articles of Incorporation with the State of California. The original founders signing the articles were (alphabetically) Roy H. Brandreth, Lester A. Fourness, Harold F. McCartor, Henry B. Peters, Richard C. Peters, Marvin R. Poston, Stanley A. Poulsen, Bernhardt N. Thal, and Nathaniel S. West. That year, CVS opened for business in a shopping center in Oakland. Thal was elected founding president and chair of the board (serving four years, 1955-1959).[667]

Initially, CVS courted union officials in an attempt to gain approval from organized labor and establish vision coverage as part of employee benefits programs. CVS also worked with management trust funds and school districts. Progress was slow at first, as prepaid vision coverage was an untested idea. Four years passed before Thal saw what appeared to be his first CVS patient in his private practice in 1959, or so he thought – it turned out to be a misdirected referral for a young boy whose mother had brought him in for a circumcision!

Thal managed to produce CVS agreements with three local manufacturing plants introducing coverage for more than safety eyewear. One of these, Tinsley Laboratories, agreed to pay for refractions and either safety or dress eyewear.[668]

Starting in 1957, the California Optometric Association agreed to loan CVS $20,000 annually for a maximum of three years. In other states, however, opposition to adopting CVS came from delegates who were not yet convinced of the viability or necessity of the plan. In 1958, the American Optometric Association rejected an offer from CVS to assume the plan's ownership and administration. Nevertheless, in April that same year, CVS managed to sign its first multistate contract with Masters, Mates and Pilots Local 90 Union operating in the port cities of Boston, New York, Philadelphia, New Orleans, Galveston, Portland, and Seattle.

By September 1965, CVS struck an agreement with the Western Conference for Teamsters. Substantial growth led, in 1968, to relocation from Oakland to larger headquarters in Sacramento, California. (CVS opened its own optical laboratory in 1972 and relocated its home office again in 1994 to Rancho Cordova, a suburb of Sacramento.) CVS was renamed Vision Service Plan (VSP) in 1976, and the following year it had its first contract with a health-maintenance organization, thus entering the managed-care market. By the 1980s, VSP membership had grown to around eight million members with a network of 5,000 participating doctors. Regional offices opened up across the country as the organization developed into a national company.

Expansion continued during the 1990s with the acquisition of other service plans and the addition of subsidiaries (Eyefinity and Altair Eyewear). By 2010, enrollment had reached 55 million members.

The dream of prepaid vision care first proposed by Richard Peters, Henry Peters, Roy Brandreth, Bernhardt Thal, and others was realized far beyond their expectations. Today, VSP has more than 4,000 employees and more than $2 billion in annual revenue.

Notes

661. Roy Brandreth, unpublished, undated (c. 2007) summary of personal history and career, typed page, Archives. The optical lab cited by Brandreth was the Mann Instrument and Optical Company in Oakland, CA. Thal worked there after his graduation from Berkeley Optometry in 1948 before he started his optometric practice in 1954.

662. Lawrence Thal, "Optometry's Screaming Eagles, Part 4: Vision Service Plan," *California Optometry* 31, no. 1 (January-February, 2004): 15. Lawrence Thal '75 is quoting his father, Bernhardt Thal.

663. Allan Colt, secretary-treasurer, minutes of the Alameda Contra Costa Counties Optometric Association, June 1955, types minutes, on long-term loan from Lawrence Thal, Archives.

664. Minutes of the Alameda Contra Costa Counties Optometric Association, Special June Meeting, 1955, typed minutes, on long-term loan from Lawrence Thal '75, Archives.

665. Minutes of the Alameda Contra Costa Counties Optometric Association, August 1955, typed minutes, on long-term loan from Lawrence Thal '75, Archives.

666. Minutes of the Alameda Contra Costa Counties Optometric Association, September 1955, typed minutes, on long-term loan from Lawrence Thal '75, Archives. At this time, the AOA was also looking into a prepaid plan through a committee called Social and Health Care Trends.

667. Before starting his optometry practice in Berkeley in 1954 (retired 1983), Bernhardt Thal served in the military as a U.S. Navy pilot (1941-45). He designed ophthalmic instruments for Mann Instrument and Optical Company in Oakland and later was president of Instrument Company of America. He served as the first president of CVS from 1955-1959 and as a board member and actuary until 1970. Although he was not the first to join the group of innovators proposing vision-care insurance, Thal's contributions and leadership were recognized officially in 1971 when both the COA and the AOA, by resolution of their houses of delegates, acknowledged him as the Father of Prepaid Vision Care. A few years later, he also served as president of the California State Board of Optometry (1973-75). In addition to receiving the OAAUC Alumnus of the Year award in 1986, Thal other honors included Optometrist of the Year from the Alameda Contra Costa Counties Optometric Society in 1968 and 1976, and Optometrist of the Year from the COA in 1982.

668. Thal. "Optometry's Screaming Eagles" (see note 662), 14.

E. LeRoy Ryer (1880-1972) and Elmer E. Hotaling (1887-1950), Optometric Leaders and Authors, and Partners in Optometry Practice

David A. Goss, O.D., Ph.D.
School of Optometry, Indiana University, Bloomington, IN 47405, dgoss@indiana.edu

Abstract

E. LeRoy Ryer and Elmer E. Hotaling were very prominent optometrists of the first half of the twentieth century and made numerous contributions to the profession. They were among the early pioneers of professional optometry practice. They published many articles in optometry journals, and did work in instrument design. They were charter members of the American Academy of Optometry in 1922, Ryer having suggested such an organization in 1905. In the first decade of the twentieth century, they were briefly faculty members in a two-year optometry school, an unusual length of study for the time. This paper presents brief biographical sketches of each, along with discussion of the two books they coauthored, Optometric Procedure and Ophthalmometry. The former book contained much of their views on how optometry should be practiced.

Key words: *American Academy of Optometry, Optometric Historical Society, optometry books, optometry history*

Anyone doing much reading about optometry in the first half of the twentieth century is bound to run across the names Ryer and Hotaling. They made numerous contributions to optometry, and they authored many professional articles and two books. This paper presents biographical sketches of E. LeRoy Ryer and Elmer E. Hotaling and discusses the contents of their books.

E. LeRoy Ryer (1880-1972)

Elmer LeRoy Ryer recalled that his first playthings "were old lenses, discarded optical instruments, prisms, mirrors, a cherished kaleidoscope and not too much later, concave and convex mirrors, microscope, telescope, and best of all a small spectroscope and a total-reflecting prism."[1] Both of his parents graduated from the Spencer Optometric Institute, and his father was employed by the Spencer Optical Company in New York as a salesman, office manager, and refractionist. Ryer recalled that his father sometimes took him to work with him on Saturdays and they often stopped to look at the window display of optical goods and drafting instruments in the window of the shop of James Prentice and Son, the son, of course, being Charles Prentice.[2] One of the items on display was Charles Prentice's model demonstrating refractive errors and accommodation.

Ryer was a voracious reader and in his early teen years, Ryer prescribed for himself a rigorous reading program of literature, philosophy, history, science, etc. At age thirteen, he was studying Brewster's *Treatise on Optics* and carrying out some of Brewster's experiments.[2] At age 15, most of his study was devoted to optics and refraction, and he graduated from Spencer Optometric Institute in 1897. Over the next months, he attended preparatory school, worked in the office of Harry Heath, who had been an instructor in the Spencer Optical Institute, and learned retinoscopy from L.L. Ferguson, a refractionist for the Julius King Optical Company. Then after working briefly for Spencer Optical Company and for Michael Woolf, Ryer established his own practice.

Ryer set up his own practice in 1898. He established it in a professional setting in an upstairs office rather than a street level store. In an unpublished autobiography, Ryer chided revered optometric leaders such as Charles Prentice and Andrew Jay Cross for still practicing in stores at the beginning of the twentieth century.[2] He made the point repeatedly that when he set up he was practicing in an unusual way, optometry then being largely a mercantile rather than professional enterprise.[2] Many of his publications emphasized the importance of professional practice. Koch said that Ryer would be one of the potential answers to the question of "who developed the first wholly professional private optometric practice."[3]

Ryer was a frequent contributor to optometric periodicals. For example, in the first decade of the twentieth century, he contributed over 300 items to the *Jeweler's Circular Optical Department* and to the *Optical Review*.[2] With Elmer E. Hotaling, he was author of 20 papers published from 1928 to 1947 in the *American Journal of Optometry and Archives of the American Academy of Optometry*.[4] For over 25 years, he was a book review editor for the *Journal of the American Optometric Association*, contributing numerous book reviews. Ryer was also an inventor. He received patents for devices improving retinoscopy (1900) and indirect ophthalmoscopy (1901) and for a rotatable astigmatism chart (1905), and he developed a type of optometer which was called a Ryer Astigmometer.[2]

Ryer was editor of a short-lived publication, *Archives of Optometry* (1922-23). He thought that it did not survive because subscription fees were charged, whereas the competing *American Journal of Physiological Optics* (1920-26) was distributed to optometrists at no charge by the American Optical Company.[2] Ryer also served as an associate editor for *Optical Journal and Review of Optometry* and for the *American Journal of Optometry.*[5]

From 1898 to about 1907, Ryer gave private lessons in optometry at what he called the Ryer Private Optometrical Institute.[2] The student attended until Ryer thought the student "fit to practice."[6] Ryer was then a faculty member in the New York Institute of Optometry (NYIO). An advertisement for the NYIO in the 1907 *Optical Journal* listed A. Jay Cross as president and E. LeRoy Ryer as secretary.[7] The advertisement said that the school had "an active faculty of six members, each of whom lectures from two to five times weekly." In 1909, NYIO was a two year school, when there were no

standards for length of study in optometry school and many schools were offering curricula of weeks or months in duration. The faculty were S.H. Brooks, A.J. Cross, E.E. Hotaling, R.M. Lockwood, E.L. Ryer, and F.A. Woll, most of whom were well known in optometric circles.[8] In November of 1909, the closing of NYIO was announced, the reason given being that some of the faculty found it difficult to maintain their private practices while teaching at the school.[9] It appears that ended Ryer's involvement as a regular faculty member in an optometry school.

Beginning in 1906, Ryer served for a few years as president as Physiological Section (later called the Scientific Section) of the American Association of Opticians, the forerunner of the American Optometric Association (AOA). It advocated increased educational standards for optometrists and arranged lecture programs at the AOA meeting until it was disbanded in 1919.[10]

In 1905, as president of the Optical Society of the City of New York, Ryer proposed the idea of an American Academy of Optometry. His address was later published as an editorial in the *Optical Journal and Review of Optometry*. He explained the need and justification for such an organization and presented guidelines for establishing an academy.[11] Both Hofstetter[11] and Gregg[12] noted that Ryer's concepts for an academy were essentially those of the American Academy of Optometry decades later. In 1912-13, Ryer along with R.M. Lockwood, E.E. Hotaling, N.Y. Hull, and J.H. Drakeford founded the New York Academy of Optometry. Membership requirements included passing an examination and adhering to a code of ethics, one aspect of which was the professional practice of optometry.[13] When the American Academy of Optometry was founded in 1922, Ryer became one of its charter members and one of its most active participants.[14]

In 1908, Ryer published a paper entitled, "My new method of correcting convergent squint."[15] In that paper, he acknowledged Donders as having shown that correction of hyperopia in preschool children can help to eliminate esotropia. Ryer then suggested that treatment for esotropia at near should include bifocal lenses and that such treatment is appropriate not only in hyperopia, but also in emmetropia and myopia, and further that such treatment is to be used in school-age children as well as preschool children. Ryer said: "My method consists of prescribing bifocals and eliminating both near and distance accommodations, instead of giving the usual distance correction only. [p. 21]…My plan is then to consider the use of bifocals in every case of convergent squint, no matter what the refractive condition may be and regardless of the age of the patient." [p.22]

Separate sources give 1912 and 1914 as the year in which Elmer E. Hotaling joined Ryer in practice.[5,16] Another source says that Hotaling was in practice for 38 years with Ryer, which would put the year at 1912.[17] After Hotaling died in 1950, Ryer was joined in practice by Harold M. Fisher. Ryer retired from optometry practice in 1959.

Fisher[18] recalled that Ryer did not have any hobbies; his only interests in life were his family, optometry, and books. Ryer's books contained a date (or dates) penciled in on the upper left hand corner of the inside of the front cover, signifying when he had finished reading each book.[18] Ryer's extensive book collection included books such as Newton's *Opticks* (1730), Robert Smith's *Compleat System of Opticks* (1738), and "more than a hundred other books not likely to be found in other private optometric libraries."[19] Ryer's bookplate was designed and drawn by his associate E.E. Hotaling. The bookplate design includes a seated figure staring off into space, which Hotaling said was "meant to convey the truth about Ryer – he built castles in the air but kept one foot on the ground."[20]

Evidence that Ryer was totally absorbed in his work, comes from a pamphlet written by his wife, entitled *The Man Who Examined Your Eyes.* She said: "For a number of years his average day's work consisted of lecturing from 9 to 10, office hours 10:30 to 4:30 and from 6 to 8, lecturing again from 8:30 to 10, and writing or working in laboratory from 10:30 to 12 or 1:00 in the morning."[21] This undated pamphlet says that he had published over 450 optometry articles. This pamphlet is the only source where I have found mention of degrees he obtained. It says that he had a D.O.S. degree from the New York Institute of Optometry and an Opt.D. from Philadelphia Optical College.

Maria Dablemont, one of the founders of the Optometric Historical Society and a long-time librarian and archivist for the American Optometric Association (AOA), noted that Ryer "embodied the highest ideals of the profession…He loved the classics and delighted in quoting from them. Very shy, extremely modest, he shunned public appearances. Yet, he was an articulate and persuasive speaker, and could be an indomitable opponent when the cause of optometry was at stake….His speech proposing an academy of optometry was a masterpiece."[22] Dablemont noted that when Ryer became a history consultant to the AOA after his retirement, "in his own thorough and uncompromising way, he went far beyond what was expected."[22] He donated books, private papers, museum objects, patents, awards, and memorabilia to the AOA.

Elmer E. Hotaling (1887-1950)

One optometric author suggested that Elmer E. Hotaling may have gotten into optometry because his family was friends with Ryer's family.[5] Hotaling was a graduate of City College of New York.[17,23] He studied optometry with Ryer.[2] After graduating from the New York Institute of Optometry in 1907, he became a member of its faculty.[17,24] He graduated from Philadelphia Optical College in 1912.[23-25]

Hotaling was a co-founder of the New York Academy of Optometry. He served several organizations as president, including the New York Academy of Optometry, the Optometrical Society of New York, and the national Omega Epsilon Phi optometry fraternity. For 17 years, he was book review editor with Ryer for the *Journal of the American Optometric Association.* In 1944, Hotaling and Ryer received the gold medal of the Distinguished Service Foundation of Optometry.[22,24]

Hotaling was a charter member of the American Academy of Optometry and served on its Executive Council for several years.[25] He also was a member of the editorial board of the *American Journal of Optometry*. In the early 1930s, he chaired an Academy committee charged with studying the effects of Calobar filters on the progression of age-related cataract.[26]

Hotaling also did some work in instrument development.[17,25] He and Ryer worked on a visual acuity chart for General Optical Company.[25] Gregg[27] credited Ryer, Hotaling, and R.M. Peckham as being among the first optometrists to do work in orthoptics and vision training.

Two sources mentioned that Ryer and Hotaling developed the concept of "two men examining each case,"[5,17] but I have not found a description of how they divided up or coordinated examination procedures. Koch expressed the opinion that "Hotaling's character was distinguished by an unswerving devotion to professional and scientific optometric practice and he was never willing to compromise with less than the best optometric science could offer."[25]

Ryer and Hotaling's book *Optometric Procedure*

Ryer and Hotaling published *Optometric Procedure: Basic and Supplementary* (x + 94 pages) in 1941. They stated that the purpose of the book was to set forth "the principles which it is believed should underlie the establishment and conduct of optometric practice." (p. ix) They noted that competence in optometry involved "thorough knowledge of the refractive and muscular anomalies of the human binocular apparatus" and "mastery of instruments that insure precise measurements, dependable diagnosis, and rational corrective procedure." (p. 11) They discussed the floor plan and furnishings of their office. The floor plan contained two examination rooms, an orthoptics and auxiliary tests room, a consultation room, a reception room, a dispensing room, a laboratory, and a storage closet.

The authors emphasized the importance of ethics and professional practice. They also advocated knowing the history of the profession and having a good library: "Not to know the history of our calling…, the struggles of our pioneers…, and "all that books can tell us," will "deny ourselves encouragement and inspiration, and reduce immeasurably the chances of success." (p. 28) They also espoused the consultation of books as a necessary accompaniment to practical experience: "To those optometrists, if there by any, who may be tempted to spurn book-mindedness in the face of practical experience, let us recommend Osler's kindly suggestion that a well-used library is one of the few correctives of the premature senility which is so apt to overcome all engaged in the daily round of practice." (p.29)

Ryer and Hotaling suggested that the necessary elements of an optometry practice were a secretary "to carry out all office detail," an assistant who was optometrically trained "who relieves you of detail not a necessary part of your work," and "complete equipment." (p. 31) They felt that the ideal optometrist was "one who respects his calling; elicits and interprets essential symptoms; differentiates pathological

from functional phases; determines the distinctive nature of monocular and binocular anomalies; corrects or eliminates those anomalies by any means he has mastered; looks forward to ever-widening fields of usefulness; realizes that up to date he has mastered such subjects as geometric, mechanical, and physiological optics, ocular anatomy, physiology, and hygiene, ocular mycology and ocular refraction in the broadest sense…" (pp. 35-36) They expressed the opinion that optometrists should not only determine a spectacle prescription, but should also include the selection and adaptation of glasses in the services they provide. The book included examples of appointment forms, billing forms, reminder notices, and other forms.

The authors summarized what they considered "adequate equipment" to be for an optometrist, "and in case he cannot procure it all at once, the order which should be followed in assembling it: A mastery of words; good English, clear thinking, careful phrasing and control; a comprehensive library and the habit of using it; an interpupillary gauge; a master additive-power trial case of highest quality and accuracy; a substantial and easily adjustable trial frame; an accurately calibrated and adequately illuminated test chart; a phorometer; an ophthalmoscope; a retinoscope; an ophthalmometer; a binocular loupe and transilluminator; a malingerer test; at least two tests for color blindness; a set of accurately marked cross-cylinders; a perimeter; a campimeter; a slit-lamp and corneal microscope; a Stereo-Orthoptor or Metronoscope-phorometer; an Ophthalmograph; a Dark Adaptometer; and an Ophthalmoeikonometer." (pp. 58-59)

They suggested that examinations be orderly and complete, but flexible. They also forcefully noted that dealing with nearpoint discomfort and binocular vision problems was as important as providing clear distance visual acuity: "It is to be feared that the prevailing abject submission to that false god V.A., who dominates distance-test procedure, frequently brings glasses, Optometry and individual standing into disrepute, and will continue to do so until near-work problems, near-work diagnoses and near-work corrections cast off his influence." (p. 78)

A review of the book said: "For years Ryer and Hotaling have been leading forces in the effort to more fully develop all professional aspects of refractive work particularly as this refers to the practice of optometry. This small volume is full of interesting and practical information dealing with all phases of practice building."[28]

Ryer and Hotaling's book *Ophthalmometry*

Ryer and Hotaling published *Ophthalmometry* (xiii + 141 pages) in 1945. It was updated edition of Ryer's 1925 book with the same title. In the introduction, the authors noted that the real worth of the ophthalmometer and ophthalmometry "has been invalidated as much by dogmatic overpraise as by misdirected adverse criticism. Within well defined limits the ophthalmometer does its work superlatively well." (p. 1) The book provides a comprehensive description of the use and principles of ophthalmometry in optometric practice, including scientific background in the design and use of the ophthalmometer, its use in refraction and applications to the investigation of various conditions, procedures for setting up and performing ophthalmometry, and operation of the Micromatic ophthalmometer. In the discussion of the operation of the Micromatic

ophthalmometer, the authors describe the procedure they developed of using colored mires to aid in more accurate alignment of the mires.

They suggested that the predictive value of calculations such as Javal's rule could be improved by using Neumueller's tables adjusting for amount of spherical refractive error. They also suggested that improvements could be gained by considering patient age. They discussed the relation between ophthalmometer findings and subjective refraction in various conditions, such as amblyopia, aphakia, and cataract. They also noted the fact that it could be used to identify irregular astigmatism.

The authors also present clinical data on various aspects of ophthalmometry. For instance, on pages 38-41, they discuss the relation of anisometropia and difference in ophthalmometer powers between the two eyes. They searched 4,318 cases for cases of anisometropia of 1.00 D or more. Of 415 cases meeting that criterion, only 22 had an ophthalmometer difference which exceeded the amount of anisometropia.

A review of the book said: "The work is well done and includes, of course, much that appeared in Ryer's splendid original book on *Ophthalmometry* published in 1925. The more recent techniques are presented in clear detail, and the authors review every practical use of the instrument."[29]

Acknowledgments

I thank Linda Draper, Special Collections Librarian for The Archives and Museum of Optometry at the American Optometric Association, for sending me copies of the Ryer autobiography and pamphlet.

References

1. Ryer EL. Untitled undated typescript autobiography, from the collection of the American Optometric Association Museum: 3-4.

2. Ryer EL. Untitled undated typescript autobiography, from the collection of the American Optometric Association Museum.

3. Koch CC. E. LeRoy Ryer. Am J Optom Arch Am Acad Optom 1973;50:342-343.

4. Forty-four Year Cumulative Index. American Journal of Optometry and Archives of the American Academy of Optometry, vol. 1 (1924)-vol. 44 (1967). Chicago: Professional Press: 70.

5. Doane HC. Foreword. In: Ryer EL, Hotaling EE. Optometric Procedure: Basic and Supplementary. New York: American Optical, 1941:v-viii.

6. Ryer EL. Untitled undated typescript autobiography, from the collection of the American Optometric Association Museum: 69.

7. Optical J 1907;20:624.

8. Goss DA. Glimpses of American optometric education 100 years ago as revealed in the pages of The Optical Journal. Hindsight: J Optom Hist 2009;40:117-128.

9. Closing of the New York Institute of Optometry. Optical J 1909;24:828.

10. Gregg JR. American Optometric Association: A History. St. Louis: American Optometric Association, 1972.

11. Hofstetter HW. Errata: E. LeRoy Ryer. Am J Optom Arch Am Acad Optom 1973;50:593-594.
12. Gregg JR. History of the American Academy of Optometry 1922-1986. Washington: American Academy of Optometry, 1987:6.
13. Gregg JR. History of the American Academy of Optometry 1922-1986. Washington: American Academy of Optometry, 1987:13.
14. Gregg JR. History of the American Academy of Optometry 1922-1986. Washington: American Academy of Optometry, 1987:18-20,192.
15. Ryer EL. My new method of correcting convergent squint. Optical Rev 1908;2(8):19-23.
16. Koch CC. Obituary: Elmer E. Hotaling. Am J Optom Arch Am Acad Optom 1950;27:416-417.
17. Anonymous. Death of Dr. E.E. Hotaling. Optical J Rev Optom 1950;87:64.
18. Fisher HM. Recollections of Dr. LeRoy Ryer. J Am Optom Assoc 1974;45:1424-1428.
19. Ryer EL. Untitled undated typescript autobiography, from the collection of the American Optometric Association Museum: 7.
20. Hofstetter HW. The Drs. Ryer and Hotaling. Newsletter Optom Hist Soc 1977;8:58.
21. Ryer FT. The Man Who Examined Your Eyes, undated 16 page pamphlet.
22. Dablemont M. Ryer and the ILAMO. Newsletter Optom Hist Soc 1976;7:1-3.
23. Anonymous. Dr. Hotaling dies; optometry leader. New York Times, July 23, 1950; 56.
24. Anonymous. Obituary: Dr. Elmer E. Hotaling. Optom Weekly 1950; 41:1203.
25. Koch CC. Obituary: Elmer E. Hotaling. Am J Optom Arch Am Acad Optom 1950;27:416-417.
26. Gregg JR. History of the American Academy of Optometry 1922-1986. Washington: American Academy of Optometry, 1987:29-30.
27. Gregg JR. The Story of Optometry. New York: Ronald Press, 1965:246-247.
28. Koch CC. Book review: Optometric Procedure. Am J Optom Arch Am Acad Optom 1942;19:127-128.
29. Ehrenberg RH. Book review: Ophthalmometry. Am J Optom Arch Am Acad Optom 1946;23:325-326.

Von Arlt and Medical Refraction

Sol Tannebaum, O.D., M.H.S.
2620 Oakwood Drive, Olympia Fields, IL 60461

Editor's Note: *This article is reprinted from the July, 1969 issue (volume 40, number 7, pages 741-742) of the Journal of the American Optometric Association at the suggestion of the author and with the permission of the American Optometric Association. Dr. Tannebaum was a charter member of the Optometric Historical Society in 1970 and contributed many articles on optometry history to the Journal of the American Optometric Association and other publications. Historical context and significance, with respect to optometry, of von Arlt's views on refraction may be gained from an excerpt from Hofstetter's 1948 book Optometry: Professional, Economic, and Legal Aspects: "It is obvious that the progress of the first half of the 19th century [in optics] had placed more and more responsibility upon the dispensing and refracting opticians. At the same time a number of oculists had taken an interest in refracting, and contrary to the more common attitude of the medical physicians of the time, were advocating the inclusion of refraction in the field of medicine. It was chiefly by the labors of the ophthalmologist Ferdinand Ritter von Arlt (1812-1887) that the medical profession was induced to assume the correction of errors of refraction. In a volume published in Prague in 1846 and revised in 1868 he called on the medical practitioner to fit spectacles and eye glasses themselves instead of leaving so important a matter to opticians [the term by which optometrists were known at that time]. The jealousies that were started then have yet to be outlived." (page 31) Additional information about von Arlt can be found on pages 370-380 of the 1993 book Men of Vision: Lives of Notable Figures in Ophthalmology by Daniel M. Albert and Paul Henkind.*

"Unfortunately, glasses receive just as little regard as did operations for cataract one hundred years ago," wrote von Arlt in 1846. "It is clear," continued von Arlt, "that non-physicians can only have an incomplete knowledge about those important and basic principles. And people who choose glasses without consulting a physician can never be sure if they do not violate just these principles."

Dr. Ferdinand Ritter von Arlt was one of the most distinguished oculists of his day. His profuse writings commanded world wide attention. Those "basic and important principles" in Professor von Arlt's writings referred to the use and abuse of glasses and other optical instruments. "These principles are based partly on the construction of these instruments and the translucent structures of the eye, and partly on the reactions of the eyes under healthy and abnormal conditions, which are more or less connected with the condition of the whole body."

Dr. Arlt's lectures were inspirational. Students eagerly listened to his remarks. Scholarly and scientific, his enthusiasm encouraged a long succession of oculists to

emulate his ways. Dr. Arlt was undoubtedly one of the pathmakers of international ophthalmology. "The principles of the first part are derived from optics and dioptrics and should be familiar to the physicist and especially to the optician, as well as to the physician. The principles of the second part ask for a comprehensive medical knowledge."

Dr. Arlt was a leading professor of ophthalmology in Vienna. He enjoyed a successful ophthalmic practice for over half a century. After reaching his forced retirement age under Austrian law in 1883, he continued with ophthalmic authorship. In the meantime, in 1855 he became joint editor with Donders on Graefe's Archives of Ophthalmology.

"Since physicians, who should have the best scientific and medical knowledge and skill seemed to be ashamed to perform these (cataract) operations, or at least did not accept them, this beautiful branch of the medical arts was left to roving 'cataract surgeons,' who were much more interested to fill their purse than to completely cure their patients." The critical professor continued. "We admire the great artists who make various optical instruments, starting from a simple lens for glass up to the most complicated telescope. They are specialists for whom we have high respect. But if common laborers and tradesmen deal with various eye-glasses and optical instruments and travel from market place to market place, it is clear that they are only interested to sell as much as possible. Thousands and thousands of people who need help for their eyes pick their glasses by chance."

Arlt's little volume of 146 pages entitled "The Care of the Eye Under Healthy and Pathological Conditions" was first published in 1846, revised in 1856 and again revised in Prague in 1865. His plea for his medical colleagues to assume the correction for errors of refraction fell on very receptive ears. It was a time when greater responsibilities were placed upon the refracting and dispensing opticians of that day for prescribing corrective lenses. Optometry was about to emerge as a separate scientific discipline apart from the optician and the ophthalmologist. The battle cry for ophthalmic refraction was heard around the world!

"After what I said in the previous chapters, there should be no doubt that concern for correct glasses deserves to be placed on the same level with the strongest drugs. Strong drugs are only dispensed in pharmacies and even there only with a prescription; but glasses can be sold by any tradesman, no matter if they are well or badly cut, no matter if they are suitable for the eye or not. Thus, the most important sense-organ is carelessly treated and may unnecessarily lose its usefulness."

"But I hope," wrote Arlt during his period of influence, "that in the future scientifically trained men will look at the situation more seriously. Physicians, especially those who call themselves eye-specialists, will have to learn more about glasses and their use. They will have to have a collection of lenses, made by a reliable optician and they will not only discuss the need for glasses but also decide the kind of lenses and the focal distance (strength, number, etc.). Then they will send the patient to the optician

with a kind of prescription, containing exact specifications. They will also include individual instructions for the use of the glasses, since you cannot expect this kind of knowledge from even the best optician."

Von Arlt's criticism did not aim solely at the tradesman in glasses. He pointed, "Don't we take a watch which needs repair to a watchmaker, and not to a turner's shop or a blacksmith? But the care of the eyes is often given into the hands of a midwife, or a shoemaker, people who have little knowledge of the eyes. Unfortunately, we are raised to believe in the unbelievable, to gaze at the incomprehensible, to search for secret powers in nature, things that cannot be explained. A recovery under the treatment (if I may call it that) of a layman is admired, but a recovery under the direction of an educated physician who does not hide his methods and remedies is just something normal. An adverse ending under the treatment of a layman is, with good reasons, kept secret; but if it happens under treatment of a physician, he will be blamed for it relentlessly."

He continued his attacks on thoughtlessness and ignorance about eye care. "In some parts of the country some really dangerous cures are practiced such as breathing vapor of chewed cloves into the infected eyes, or finely powdered sugar, or application of little pieces, with or without camphor or warm water, of baked apples or onions, etc. It is true that occasionally the eyes recover despite these practices, but we know that sometimes an infected eye can take a lot of abuse. From experience we know that unfortunately in too many cases the disease was aggravated or eyesight irretrievably lost by quackery. Who wants to undergo treatments which reason rejects as ridiculous and risk the loss of such an important organ?"

Von Arlt's casualness and sincerity repeatedly promoted the merits and esteem of the physician. In effect, his writings resulted in one of medicine's early public relations efforts. His advice on the care of the eyes of the newborn are as readable and appropriate today as the day they were written. His warnings against misinformation, thoughtlessness and ignorance also have validity. Likewise the incompetent and unscrupulous have no place in the field of eye care. It would be interesting to speculate whether he would have welcomed a separate, learned discipline side by side today to eliminate the very evils he so ardently fought against.

Arlt's "Clinic Studies on Diseases of the Eye" translated by Lyman Ware in 1885 was a fitting climax in a long and useful career by a remarkable Viennese professor not easily to be forgotten.

References

All quotes in this article are translations for this writer from the original German work, "Die Pflege Der Augen im Gesunden und Kranken Zustande," by Dr. Ferd Arlt, 3rd revised edition, Prague, 1865. The table of contents describes five chapters, the last of which is a supplement about eyeglasses. For further reference, see American Encyclopedia and Dictionary of Ophthalmology, Vol. 1, 1913, by Casey Wood.

Frederic A. Woll (1874-1955), Optometric Practitioner, Educator, and Author

David A. Goss, O.D., Ph.D.
School of Optometry, Indiana University, Bloomington, IN 47405, dgoss@indiana.edu

Abstract
Frederic Albert Woll (1874-1955) had a distinguished career in optometry and as a member of the faculty in the Department of Hygiene at City College of New York. Woll was an optometry instructor for many years at Columbia University and wrote four books significant in optometry. He played a pivotal role in the establishment of standards in optometric education and in the evaluation of optometry schools in the 1920s and 1930s.

Key words: *optometric education, optometry books, optometry history.*

Frederic Albert Woll was born in New York City in 1874, and attended public schools there. He quit school at the age of twelve due to vision problems.[1] At fifteen years of age, he went to work as an office boy in the optometry office of Andrew Jay Cross. Cross found that Woll was highly myopic and prescribed his first spectacles. It was said that Woll's first spectacle correction "unfolded a new world for the young boy and interested him in the world of ocular refraction."[1] Cross trained Woll as an optician and then as an optometrist.[2] By the time Woll was 21 years old, he was doing refractions in Cross's office.[1] Woll returned to school as an adult, receiving a B.S. degree from Columbia University in 1910 and an M.A. in 1911. In 1917, he completed a Ph.D. degree from New York University.[2,3] The title of his thesis at New York University was "Physique in Relation to Success in Life."[4]

Woll was a member of the faculty of the short-lived New York Institute of Optometry in 1909,[5] and was one of the original instructors in the optometry school at Columbia University when it opened in 1910.[6] He was an Associate in Optometry at Columbia University until 1944.[1] He became an instructor in the Department of Hygiene at the City College of New York in 1913, progressing through the ranks to assistant professor in 1918, associate professor in 1920, and professor in 1927, until his retirement in 1944.[1,7] He was Chairman of the Department of Hygiene at City College of New York from 1927 to 1944. He served as chief marshal at City College of New York for many years, leading academic processions.[3]

Some of the work for which Woll was particularly well known in optometry was in drawing up detailed syllabuses of the subjects to be taught in optometry school courses and in evaluating optometry schools.[8] The syllabi were first prepared in 1922 and later revised in 1935.[9] In the mid-1920s, Woll made inspection visits to all optometry schools in the United States and Canada that were deemed worthy of investigation.

Woll volunteered to do these evaluations without pay, receiving only reimbursement for his expenses from the American Optometric Association.[10] There were about 30 optometry schools in operation in the mid 1920s when those evaluations began. By 1936, the number of optometry schools had decreased to ten and the length of the optometry curriculum had increased to three years. A significant factor in the decreasing number of schools was the closure of poorer schools due to the evaluations and the elevation of standards. Woll's work thus served much of the same function for optometry as had the Flexner Report for medical education.

Woll was a member of the Committee on Education of the International Association of Boards of Examiners in Optometry from 1923 to 1942, serving as its chairman from 1932 to 1942.[7] He was a member of the New York State Board of Examiners in Optometry for over 25 years.[7]

Woll received a number of awards and recognitions in optometry. He received the Gold Medal of the Distinguished Service Foundation of Optometry and an award of merit from the Columbia University Optometry Association.[8] He was the third person to receive Honorary Life Fellowship in the American Academy of Optometry.[1] Woll has been credited with improvements in retinoscopy and methods of grinding lenses and with being the first to isolate the retina by dissection.[1]

Woll published four books. The first of these was *Technique of Eye Dissections*, published in 1914. A second edition was published in 1924 and a third edition in 1928. I examined a copy of the first edition (131 pages). In the preface, Woll stated: "The aim of this booklet is to present to the eye-specialist, the teacher, the student, and others interested in the study of the anatomy and physiology of the eye, some definite methods to follow in the dissection of that organ." Instructions are given for the investigation of the sheep or beef eye, and of the ocular adnexa and extraocular muscles. The book includes 64 black and white photographs.

Woll's second book was *Hygiene the Optometrist Ought to Know*, published in 1921 (208 pages). Woll made the point that the optometrist should know something about hygiene because the function of the eye and visual system is inter-related with the function of other parts of the body. Among the topics covered were cleanliness, nutrition, exercise, sleep, fresh air, accident prevention, and causes of disease. A last chapter, entitled Hygiene for the Optometrist, expounded on the importance of optometrists being well-kept and maintaining a professional appearance and healthy habits. Having a clean, comfortable, safe office and examination room with well-maintained equipment was also emphasized.

In 1922, Woll edited and wrote most of the *First Revision of Optometrical Syllabuses and Standards*, which was adopted at the first conference on standards in optometric education.[10] A revised version was published in 1935. I examined the contents of the 1935 edition (71 pages). It included short reports and commentary from participants in the 1922 conference, including William S. Todd, Charles Sheard, and

Howard C. Doane. Seven pages were devoted to a 1934 classification of optometry schools and a description of the essentials of an acceptable optometry school. Most of the monograph consisted of Woll's syllabuses. These were detailed lists of topics that should be taught in optometry schools, divided into the topical areas of Anatomy and Physiology of the Eye, Theoretical Optometry, Geometrical Optics, Practical Optometry, Mechanical Optics, Physiological Optics, Diseases of the Eye, Eyesight Conservation (which included lighting, nature of print materials, industrial vision, eye protection), and Hygiene. Some of the categories of topics in the theoretical optometry syllabus were history of optics and optometry, ophthalmic lenses, nomenclature of optometry, test charts, trial lenses, general use and theory of instruments, static and dynamic retinoscopy, theories and methods of correction of refractive errors, theory of muscular imbalances, and objective and subjective optometric measurements.

In 1928, *Dynamic Skiametry: Its Theory and Practice* (192 pages) was published by Thomas G. Atkinson[11] and Woll. The authors discussed the optics and theory of retinoscopy, provided background information on accommodation and convergence, and expounded on the theory and methods of dynamic retinoscopy. They also discussed some related tests and presented illustrative cases.

Frederic Woll died in 1955. An obituary notice in the *Journal of the American Optometric Association* said that he was "dedicated to optometry as a practitioner, a teacher, writer, and lecturer," and that he was "well-loved and respected by all who were fortunate to know him."[8]

References

1. Transactions of the American Academy of Optometry: Dr. Frederic A. Woll awarded honorary fellowship. Am J Optom Arch Am Acad Optom 1948;25:38-39.

2. Newsday Obits February 1955. www.usgennet.org/usa/ny/county/suffolk/Newsdayfeb1955.html. Accessed April 12, 2011.

3. Anonymous. Frederic A. Woll, optometrist, dies. New York Times,Feb. 7, 1955:21.

4. Email from New York University Archives, April 12, 2011.

5. Goss DA. Glimpses of optometric education 100 years ago as revealed in the pages of The Optical Journal of 1909. Hindsight: J Optom Hist 2009;40:117-128.

6. Goss DA. One hundred years ago: start of the optometry school at Columbia University. Hindsight: J Optom Hist 2010;41:129-132.

7. Transactions of the American Academy of Optometry: Dr. Frederic A. Woll to retire. Am J Optom Arch Am Acad Optom 1944;21:70-71.

8. Anonymous. Frederick A. Woll. J Am Optom Assoc 1955;26:464.

9. Hofstetter HW. Optometry: Professional, Economic, and Legal Aspects. St. Louis: Mosby, 1948:67,298.

10. Christensen JL. The first conference to establish optometric standards. Optom Vis Sci 1996;73:428-434.

11. Goss DA. Some doctors of medicine who published optometry books and played significant roles in early twentieth century optometric education. Hindsight: J Optom Hist 2011;42:20-28.

Instructions to Authors

Hindsight: Journal of Optometry History is the official publication of the Optometric Historical Society (OHS), and, as such, supports and complements the purposes and functions of OHS. The journal publishes historical research, articles, reports, book reviews, letters to the editor, and article reviews. The topics of material published in the journal include: history of optometry; history of eye and vision care; history of spectacles, contact lenses, and other corrective devices; history of vision therapy, low vision care, and other vision care modalities; history of vision science; biographical sketches of persons who have worked in or influenced optometry and/or vision science; recollections or oral histories of optometrists and persons who have worked in optometry and optometry-related fields; and related topics.

Material submitted for publication should be sent to the editor: David A. Goss, School of Optometry, Indiana University, Bloomington, IN 47405; dgoss@indiana.edu. Material may be submitted by postal service or by email, although the preferred mode of reception of submissions is a Word document in an email attachment.

Authors who wish to use direct quotations of substantial length, tables, figures, or illustrations from copyrighted material must obtain written permission from the publisher or copyright owner. Short quotations may be acknowledged by quotation marks and a reference citation.

Submissions should include a title, the names, degrees, postal addresses, and email addresses of the authors. Abstracts are not recommended for short articles. Abstracts and key words are recommended but not necessary for longer articles.

Tables and figures should be numbered sequentially in the order that the mention of them appears in the text, e.g., Table 1, Table 2, Figure 1, Figure 2. Each table and figure should have mention or discussion of it in the text of the article. Each table and figure should be accompanied by an explanatory figure legend or table legend. Any article containing tables should be submitted as a Word document attachment to an email message with the tables produced through the table creating function of Word (as opposed to an Excel or comparable spreadsheet).

Extensive use of uncommon abbreviations, symbols, and acronyms is discouraged. Common abbreviations, such as D for diopters or cm for centimeters, may be used. Common symbols, such as Δ for prism diopters, may be used when the context for their use is clear. The first use of acronyms should be accompanied by the name or phrase spelled out followed by the acronym in parentheses, as for example: The Optometric Historical Society (OHS) has produced a quarterly publication since 1970.

Acknowledgments should be placed between the text of the article and the reference section. Sources of support, such as grant funding or other significant assistance, should be acknowledged. The assistance of persons who contributed to the work may also be acknowledged.

References should be placed after the acknowledgments, and for most papers will be the last section of the paper. References should be numbered in order of their citation in the body of the article. Citations should be identified in the text by superscript numbers. Authors are responsible for ensuring that reference listings are correct. Reference format should be as follows:

Journal articles:
Calvo M, Enoch JM. Early use of corrective lenses in Spanish colonies of the Americas including parts of the future United States: reference to Viceroy Luis de Velasco (the son). Optom Vis Sci 2003;80:681-689.

Section in a single author book:
Hofstetter HW. Optometry: Professional, Economic, and Legal Aspects. St. Louis: Mosby, 1948:17-35.

Chapter in a multi-author volume:
Penisten DK. Eyes and vision in North American Indiana cultures: An historical perspective on traditional medicine and mythology. In: Goss DA, Edmondson LL, eds. Eye and Vision Conditions in the American Indian. Yukon, OK; Pueblo Publishing, 1990:186-190.

Citations to articles in *Hindsight: Journal of Optometry History* should be given as follows:
Bennett I. The story behind Optometric Management magazine. Hindsight: J Optom Hist 2007;38:17-22.

If footnotes or notes on additional (minor) details are used, they should be marked in the text with superscript lower case letters starting with a and continuing in alphabetical order. The notes themselves should be the last section of the paper. The heading for the section should be Notes.

Optometric Historical Society
Membership Application

Membership in the Optometric Historical Society (OHS) is open to anyone interested in the history of optometry, spectacles, vision science, or related topics. Membership includes a subscription to *Hindsight: Journal of Optometry History*.

To join OHS, send your address and a check for dues payment to:

Linda Draper
c/o Optometric Historical Society
243 North Lindbergh Boulevard, Floor 1
St. Louis, MO 63141

Check one:
_____ regular membership, $25 per year

_____ patron membership, $50 per year

_____ lifetime membership, $250

Checks should be made payable to the Optometric Historical Society.

Name _____

Address _____
_____

A sample copy of *Hindsight: Journal of Optometry History* can be obtained by writing to the journal editor: David A. Goss, Hindsight Editor, School of Optometry, Indiana University, Bloomington, IN 47405; dgoss@indiana.edu or can be viewed at www.opt.indiana.edu/ohs/hindsightJan07.pdf.

Institutional or library subscriptions to *Hindsight: Journal of Optometry History* can be obtained by following the above instructions for registering OHS membership and completing the above OHS membership application form.

Members of the Board of Directors of Optometry's Cares™ – The AOA Foundation and the Optometric Historical Society (OHS) have signed a Memorandum of Understanding that places OHS under the auspices of The AOA Foundation. For more information about The AOA Foundation and the Optometric Historical Society, please visit www.optometryscharity.org and www.opt.indiana.edu/ohs/optohiso.html.