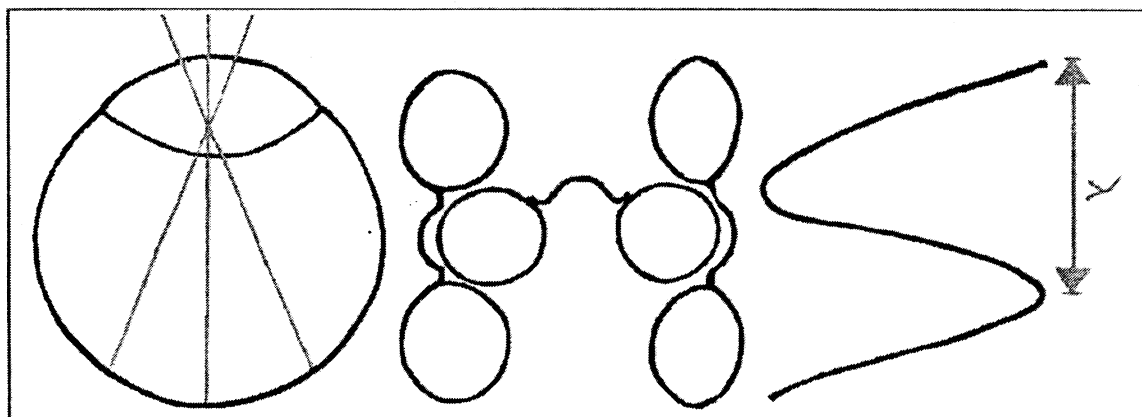


HINDSIGHT

Journal of Optometry History

January, 2010
Volume 41, Number 1



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Official Publication of the Optometric Historical Society

Hindsight: Journal of Optometry History publishes material on the history of optometry and related topics. As the official publication of the Optometric Historical Society, Hindsight: Journal of Optometry History supports the purposes and functions of the Optometric Historical Society.

The purposes of the Optometric Historical Society, according to its by-laws, are:

- to encourage the collection and preservation of materials relating to the history of optometry,
- to assist in securing and documenting the recollections of those who participated in the development of optometry,
- to encourage and assist in the care of archives of optometric interest,
- to identify and mark sites, landmarks, monuments, and structures of significance in optometric development, and
- to shed honor and recognition on persons, groups, and agencies making notable contributions toward the goals of the society.

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Newsletter of the Optometric Historical Society, 1970-1991 (volumes 1-22), and

Hindsight: Newsletter of the Optometric Historical Society, 1992-2006 (volumes 23-37).

Hindsight: Journal of Optometry History began in 2007 with volume 38, number 1.

On the cover: The drawing represents OHS for Optometric Historical Society: the O an elementary schematic of an eye, the H three intersecting pairs of spectacles, and the S a representation of a light wave with the Greek letter lambda indicating one wavelength. The drawing artist was Diane Goss.

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HINDSIGHT: Journal of Optometry History

January, 2010

Volume 41, Number 1

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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

Officers and Board Members for 2010

Five persons were nominated for replacements for the expired (as of the end of 2009) terms of Jerry Abrams and Melvin Wolfberg. Three of the five agreed to serve if elected to the Board. During 2009, one other member of the Board vacated an unexpired term. Therefore, the three who were nominated and agreed to serve will all serve on the Board. The Board members have completed election of officers among themselves as described in the OHS by-laws. Listed below are the OHS Executive Board members and the officers for 2010. The year of expiration of each Board member's term is given in parentheses.

President.....	Irving Bennett (2012)
Vice-President.....	Doug Penisten (2011)
Secretary-Treasurer.....	Arol Augsburg (2013)
Trustees.....	Jerry Abrams (2013)
	Jay Enoch (2010)
	Alden Norm Haffner (2014)
	Chuck Haine (2012)

Nominations to fill Board Position Expiring at the End of 2010

The term of Board member Jay Enoch will expire at the end of this year. Please submit your nominations for this Board position by May 31, 2010 to:

David A. Goss, Hindsight Editor
School of Optometry
Indiana University
Bloomington, IN 47405

Fax: (812) 855-7045
Email: dgoss@indiana.edu

OHS members who receive at least three nominations and agree to serve on the Board will have their names placed on an election ballot to be mailed later this year with an issue of Hindsight: Journal of Optometry History. Self nominations are welcome and encouraged.

Dues Notice

A dues notice has been enclosed with this issue of Hindsight: Journal of Optometry History. It would be much appreciated if you would respond to this dues notice promptly. Thank you.

Women on the American Optometric Association Board

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The election of officers for the American Optometric Association (AOA) in Washington, DC in June 2009, resulted in Dori Carlson becoming Vice President of AOA. This puts her “in line and on course” for the Presidency in two years. To many this may seem to be the first time that a woman optometrist ever ascended this high in the hierarchy of the national association. Not quite.

Research shows that women have been “officers” in AOA since 1907 when Edith Gallup of Denver, CO became “vice president.” This was many years before all optometry school graduates were granted the doctor of optometry degree and before it was customary for officers to ascend the organizational ladder to the presidency in any routine order.

In those early years, the officers of the association were divided into four groupings – Officers (President, two or three Vice Presidents, Secretary and Treasurer); an Executive Council; a Physiological Section and a Board of Regents. Miss Gallup was a respected lecturer and was in charge of the Physiological Section. It was not until 1910 that Mrs. D. Elva Cooper of Bradford, Pennsylvania became Second Vice President of the national association in the Officer section, the highest office up to then for a woman optometrist. She served in the VP capacity for but one year. She did create history, however, when she presided at the national convention in 1911, held in the Hotel Utah in Salt Lake City. Her experiences at that national meeting were unusual to say the least and they are reported at the end of this article.

From the beginning of AOA in 1898 until 1935, there were only seven women optometrists in the AOA leadership. Collectively they held 14 “positions.” Those ladies were: Edith Gallup (CO), D. Elva Cooper (PA), Annie D. Robinson (OH), Mildred B. Winslow (KY), Gertrude Stanton (MN), Mollie W. Armstrong (TX) and Esther M. Ingram (FL).

It may seem strange to readers to learn that from 1935 until 1973 no female optometrist was elected to a leadership position in the AOA. Then in 1973 when the AOA Convention was held in San Francisco, Marjorie S. Ross, of Battlecreek, MI, was elected to the Board of Trustees and she served as a Trustee for four years. It took another thirteen years before another female O.D. was elected to the AOA Board. Dawn C. Kaufmann, of Freeman, SD, was named Trustee in 1990, and she served for four years as a Trustee. In 1994, she was elected as Secretary/Treasurer.

Dr. Kaufmann served the AOA leadership until 1995 and was succeeded on the Board by Theresa L. Madden, of Manchester, KY, for four years. Carole D. Record, of

Charlottesville, VA, came next for two terms. Dori Carlson, of Park River, ND, was elected to the Board as a Trustee in 2004; she advanced to the Secretary-Treasurer position in 2008 and to the Vice Presidency in 2009. In 2007 Andrea Thau, of New York, NY, became a Trustee, marking the first time in recent AOA history when two female optometrists were in the AOA Leadership structure at the same time. Looking back to 1912-13 and again in 1918-19, however, there were two women optometrists in AOA management.

With student enrollment at optometric colleges running nearly 70% female, we can anticipate that more and more ODs who are women will assume leadership roles in local, state, regional and national organizations.

Earlier in this article, Elva Cooper and her presiding at the AOA convention was mentioned. A report on this event appears in the 1972 book, *American Optometric Association – a History*, by James Gregg. This book splendidly records what happened to this pioneer female optometrist when she took the reins of leadership in 1911. Gregg¹ wrote:

“Mild revolutions began at the 1911 convention at the Hotel Utah in Salt Lake City, and some precedents were broken. The ‘revolt’ came from the West; and as might be expected, California was in the center of the ruckus. Perhaps fortunately, it was a lady, Mrs. D. Elva Cooper, an AOA member from Bradford, Pennsylvania who delicately presided over the stormy session.

“With amazing frequency, members and officers of the AOA were unable to attend early conventions because of illness, far more frequently than has been the case in recent times. The convention records include case after case of illness. No president ever missed a convention until 1911, when President C.N. McDonnell was detained by illness (impacted wisdom teeth, we are told), as was First Vice-President E. E. Culverhouse of Toronto. Mr. Culverhouse’s illness was not identified in the records. This put Mrs. Cooper, who was Second Vice-President, in line to preside, which she decided to do over the objections of a few males.”

A petition was actually floated at the convention and it was signed by many members asking Mrs. Cooper to step aside since it was not ‘ladylike’ to conduct the business of a national meeting. Gregg² continues the story:

“Mrs. Cooper was warmly applauded as she stepped to the platform and said:

‘Fellow optometrists and friends: It is with regret that I bring you the tidings that many of our prominent members are detained at home because of illness.

‘For this cause, our president, C. N. McDonnell, and our first vice president, E .E. Culverhouse, are absent; hence it devolves upon me as second vice president to assume the duties of president and open this meeting.

‘This is not the only great National convention recently opened by a woman in this great and glorious west, although it may be the first in this, the beautiful Queen City. I feel that it is a great honor to participate in the work of demonstrating that the

optometrical world is as progressive and abreast of the times as is the case of other educational bodies.

'I now declare this, the 14th annual convention of the American Optical Association, duly opened for the transaction of business. We will now listen to the roll call of states, so that we may know how many members each state has present.'

"The tone of the convention was 'What good is the AOA?' Association officers are used to that question, but in 1911 the crescendo was loud because it was the first convention in the 'far west' and because the attendance was dominated by men who had not attended before and who had little direct contact with the AOA. They were looking for tangible benefits. Several states were considering withdrawal of affiliation if something was not done to appease them.

"It may have been a fortunate happenstance that Mrs. Cooper was the presiding officer. For one thing, she was respected, but even more important, she did not represent the 'Old Guard' that usually 'ran things' at conventions. There had been complaints that a few men were dominating the Association. But Mrs. Cooper gave everyone ample opportunity to speak, with no favoritism; the committee assignments were well spread out; and the nominations for officers made from the floor with two for each office voted by secret ballot.

"The result was harmony and a solution of problems might not have otherwise have occurred. There was a completely new set of officers selected."

Please note, however, that Mrs. Cooper was not re-elected as an officer.

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History of Optometry in the VA

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Optometrists were first placed on the staff of Veterans Administration (VA) hospitals in 1947; and in 1957, Public Law 85-96 provided specific authority (38 USC) for subsequent employment of additional optometrists. In 1958, Public Law 85-462 amended section 4105 (5) of 38 USC to require that all optometrists employed by the VA must hold valid state licenses to practice optometry and must have graduated from an accredited and approved United States school or college of optometry. In 1958, Public Law 85-857, and later in 1960, Public Law 86-598, made further modifications to 38 USC so that the services of staff optometrists were defined under the rubric of "medical services." The purpose was to enhance the VA's ability to render optometric care to eligible veterans. Although veterans had been receiving limited optometric care since 1947, Congress felt it was necessary to emphasize and clarify the fact that staff optometrists were duly authorized to render care to eligible veterans. Thus, by these laws, a veteran eligible for "medical services" was eligible for the services of an optometrist.

In 1972, the VA Central Office's Department of Education and Research formally approved and funded the first program in the nation for the training of optometry students at the VA hospital in Birmingham, Alabama. This historic event, which was a cooperative effort among the VA Central Office, the administration of the Birmingham Veterans Administration hospital, and the Dean of the School of Optometry at the University of Alabama in Birmingham, laid the groundwork for all future optometric academic affiliations with VA medical centers and outpatient clinics throughout the country.

One year later, in 1973, Public Law 93-82 created a position for a full-time Director of Optometry within the Department of Medicine and Surgery; and this position was filled in September of 1974 by Kenneth J. Myers.¹ Following his appointment, Dr. Myers immediately placed increased emphasis on building a viable VA optometry program to (1) provide primary eye and vision care services to eligible veteran patients and (2) expand the low vision care available to eligible visually-impaired and legally-blind veterans. To accomplish these two goals, he worked with the American Optometric Association and the Association of Schools and Colleges of Optometry to recruit new staff optometrists and to develop optometry student and residency programs within the VA. The nation's first optometry VA resident, Thomas Stelmack, completed his one-year post-graduate program at the Kansas City VA hospital in 1976.

Also in 1976, Congress passed Public Law 94-581 established an Optometry service within the VA's Department of Medicine and Surgery, with a Director of that service who was on the same administrative level in VA Central Office as other

independently-licensed health care disciplines such as medicine, dentistry, nursing, and pharmacy. Public Law 94-581 also removed staff optometrists from the former Title 5 Civil Service personnel system and placed them administratively in the Title 38 personnel system which had been used to recruit and maintain highly-qualified physicians, dentists, and nurses since 1946. It is easy (and correct) to conclude that this single piece of legislation in 1976 was absolutely vital for the development of optometry within the VA system, since it permitted the VA to compete for young staff optometrists who could now find professional satisfaction in a VA career.

A report accompanying the landmark law, prepared by the Senate Veterans Affairs Committee (#91-1206) gave the following rationale for strengthening and enhancing the VA's optometry program:

1. Compared to military hospitals, civilian HMO's, and the public health service hospitals, the VA employed extremely few optometrists.
2. The committee felt Civil Service salaries for VA optometrists were non-competitive and, further, that VA hospitals should appoint optometrists solely upon the basis of their professional qualifications as judged by the VA medical staff and that these medical staffs - and not the Civil Service - should select and promote optometrists.
3. The committee felt existing low salaries resulted in many full-time optometrists maintaining part-time private practices and this was counter to high quality patient care. If the VA could pay a competitive salary, full-time VA optometrists could be prohibited from seeing private patients.
4. The committee felt the creation of an Optometry Service in VA Central Office would revise the present situation of optometry having a somewhat low professional status within the agency and improve morale among staff optometrists. Also, this would allow recent graduates to be recruited and retained by the agency.

The year 1977 was a banner year for VA optometry. The National Association of VA Optometrists was founded that year at the annual meeting of the American Academy of Optometry in Birmingham, Alabama. The ten founding members were Drs. Arnie Adler (Florida), Allen Cohen (New York), Ed Mehr (California), Kenneth Myers (Washington, DC), Robert Newcomb (Alabama), Robert Perlin (Connecticut), John Potter (Alabama), Cliff Scott (Massachusetts), Gerald Selvin (California), and Thomas Stelmack (Illinois). Also in 1977, the Southern California College of Optometry (SCCO) received a \$936,050 VA manpower training grant for seven years under Public Law 92-541. And a joint project team of the American Optometric Association and the Association of Schools and Colleges of Optometry submitted a detailed report to the VA's Central Office Department of Medicine and Surgery which outlined their recommendations for the development of a comprehensive program of optometric service, education and research within the VA. This significant document, as well as the one authored by the General Accounting Office in 1978 entitled "The Role and Use of Optometry in the VA Need Improvement," provided much of the documentation for

policy decisions promulgated by the VA for staff doctors of optometry under the legislative mandate of Public Law 94-581.

In the Spring of 1977, Chester Pheiffer published an editorial in the *Journal of Optometric Education* in which he said:

“...Through Congressional mandate the VA has the responsibility to help train *all* health professionals. Optometry represents the largest independent health profession following physicians, dentists and nurses. It is more than obvious that the VA has a duty to help in the training of future practitioners of optometry and, more importantly, to provide proper health care to the veteran which has not been fully realized...”²

In the history of optometry in the VA, it is important to note several key individuals and organizations which have nurtured the optometric growth in this large medically-dominated health care system. Henry B. Peters, founding Dean of the UAB School of Optometry, served as the first Chairman of the Optometric Advisory Committee to Kenneth Myers. Richard Hopping, President Emeritus of the SCCO, submitted the application for the 1977 manpower training grant. Ron Fair was President of the American Optometric Association, and Norman Wallis was President of the Association of Schools and College of Optometry, in 1977 when the AOA and the ASCO wrote their historic report. Norman Wallis, now Executive Director Emeritus of the National Board of Examiners in Optometry, also served as the first optometric representative to the prestigious Special Medical Advisory Group to the VA's Chief Medical Director, a position that has been capably filled by Norman Haffner for the past twenty years. Jeffrey Keller was the first Chief of Optometry at the Birmingham VA hospital, and Robert Carty was the first Chief of Optometry at the Kansas City VA hospital.

Prior to 1976, there were only eight full-time doctors of optometry in the entire organization! In Fiscal Year 2009, there were 600 full and part-time staff optometrists, 1,025 optometry students, and 145 optometry residents working and learning in VA health care facilities throughout the country. This phenomenal growth did not come easily or haphazardly. It occurred because optometry had a handful of visionary leaders and dozens of excellent young clinician-educators in the early years who identified the dual challenges of veterans with unmet vision needs and optometric trainees who needed off-campus interdisciplinary learning opportunities. And they worked together to build enduring symbiotic relationships throughout the nation that addressed both needs.

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Ray Morse Peckham (1876-1944) and his Optometric Writings

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Abstract

Many of the significant early twentieth century optometry authors are not well known today. An example is Ray Morse Peckham (1876-1944). Peckham was a frequent contributor to optometry journals throughout the 1920s and into the mid 1930s. He also wrote several monographs on binocular vision. This paper provides a biographical sketch of Peckham and presents notes on the books he published.

Keywords: *binocular vision, Genothalmic Kratometer, optometry books, optometry history, Ray Morse Peckham, vision therapy.*

One of the significant early twentieth century optometric authors who have largely been forgotten today is Ray Morse Peckham (1876-1944). R.M. Peckham was born November 29, 1876 at Hamilton, New York, with the name Ray Clifford Morse.¹ His mother, Annie C. Morse, died in 1882. After being raised by a family friend named Din Peckham, he changed his last name to Peckham. On his World War I draft registration card, his name appeared as Ray Clifford Morse Peckham.²

R.M. Peckham attended Colgate University for a period of time and then started making a living as a photographer.¹ In 1909, he entered the field of optical dispensing and went to work for an American company in Havana, Cuba. In 1910, he returned to the United States. His World War I draft registration card shows his occupation as optician working for Gall and Lempke in New York, New York. After World War I, he studied optometry. A short biographical sketch after his death doesn't mention him attending optometry school, and seems to imply that he was self taught when it states that he "reviewed the available text-books in preparation for the Connecticut State Board examinations."¹

In the 1920 United States Federal census for Yorktown, Westchester County, New York, enumerated March 2, 1920, Ray Peckham is listed as an optician with his own office.² His wife Edith and his sons Robert, age 11, and Morse, age 5, are also listed. It must have been soon after that when he started optometry practice in Waterbury, Connecticut, because his first publication in *Optical Journal and Review of Optometry* appeared in August of 1920, with his address as Waterbury, Connecticut.³ Peckham's son, Morse, said that Peckham conducted research with Adelbert Ames at the Dartmouth Eye Institute when he was in practice in Connecticut.⁴

Peckham published frequently in *Optical Journal and Review of Optometry* throughout the 1920s and into the 1930s. He published 20 papers in the *American Journal of Optometry* between 1925 and 1933. The American Optometric Association published its first issue of the *AOA Organizer* in 1929. It contained some of the educational lectures given at the previous American Optometric Association meeting, including one on hyperopia by Peckham. The next year, the name of the *AOA Organizer* was changed to the *Journal of the American Optometric Association*.⁵ Peckham also authored several books on binocular vision.

In 1928, Peckham was asked to teach at the Los Angeles School of Optometry after the resignation of Harry Fuog.⁶ Peckham taught there during the 1928-29 school year, and then left Los Angeles to practice in Rochester, New York. In the mid 1930s, Peckham moved to Detroit to become the Director of the Optometric Research Institute of Michigan.⁷ Peckham died on April 17, 1944, Washington, D.C., where he had shortly before moved to live with his son Robert.⁸

Peckham's sons had academic careers of some note. The older son, Robert Hamilton Peckham (born 1908), earned a Ph.D. in 1933 from Johns Hopkins University. The title of his thesis was "The Study of Eye Movements During Alternation in Binocular Vision."⁹ He was in the Department of Ophthalmology at Temple University for some period of time, and he published in optometry, ophthalmology, and psychology journals. During World War II, he was a Lieutenant Commander in the Biophysics Research Department of the Navy.⁸

The younger son, Morse Peckham (1914-1993), earned an M.A. from the University of Rochester and a Ph.D. from Princeton University. He published a number of books and taught literature for 18 years at the University of Pennsylvania and for 13 years at the University of South Carolina.¹⁰ He was in England with the United States forces during World War II when his father died.¹

Books by Ray Morse Peckham on the Genothalamic Kratometer

The first few monographs written by Peckham were about the Genothalamic Kratometer, an instrument for testing and training binocular vision. The first of these was entitled *Binocular Balance and the Genothalamic Kratometer: A Lecture Delivered at Office of General Optical Company, Inc., Boston, Mass.* It was published in 1925 by the Shur-on Standard Optical Company and was composed of 31 pages. It discusses cases where consideration of accommodation and convergence is important and gives a brief overview of the Genothalamic Kratometer.

In 1926, *The Modern Treatment of Ocular Imbalances with the Genothalamic Kratometer* appeared. The publisher was again the Shur-on Standard Optical Company. It contained 100 pages. A Genothalamic Kratometer is pictured on pages 10 and 11. It looks much like a phoropter, but had a chin rest and sat on a table or on a platform mounted on a chair-side stand. It contained a rotary disc like a phoropter, but instead of lenses, the rotary disc had an open aperture, supplementary prisms, a Maddox rod, and a red lens. Instead of rotary prisms, there were prism slides similar to

prism bars, which could be placed in the instrument. There were two horizontal prism slides and two vertical prism slides. The instrument had a reading rod that could be attached for near point tests. In addition, a septum could be placed on the near test rod for the viewing of stereoscope cards.

In this book, Peckham explained how the Genothalamic Kratometer could be used to measure distance and near phorias and vergence ranges. Then he discussed how it could be used for anti-suppression training and for the improvement of vergence ranges and accommodation and convergence amplitudes. Also discussed was treatment for hyperphoria and amblyopia. The anonymous author of the foreword to this edition praised Peckham for his insight in the recognition of underlying causes being "faulty innervational habits" rather than only muscle structure problems.

For the second edition (1928), coverage expanded to 184 pages and the word Ocular in the title was changed to Binocular so that the title read *The Modern Treatment of Binocular Imbalances with the Genothalamic Kratometer*. Pages v to viii contain a foreword by E. LeRoy Ryer, who lauds Peckham for his "brilliant exposition of the true underlying principles" of binocular imbalances. According to Ryer, Peckham's primary insight was noting the importance of "physiology" and "function" in binocular problems, rather than a strictly anatomical approach.

The second edition includes a description of Genothalamic Kratometer and its operation for the phoria and vergence range tests, cross cylinder tests, and retinoscopy. Diagnosis and management of refractive and binocular vision cases are covered. An emphasis of the book is the use of Kratometer in training for the elimination of suppression and for the development of stereopsis and in cases of lateral heterophoria, hyperphoria, strabismus, and amblyopia.

It may be of interest that Peckham suggested four steps in training, whether it be for vision or for any other activity: (1) "build the pathway," improve the function so that required effort is decreased; (2) "the habit of concentrated attention," develop the ability to perform the task with less conscious effort; (3) "speed," improve speed of response; and (4) "variety of exercises," transfer of the skill to a variety of situations. (pages 160-161) This is reminiscent of some aspects of the sequencing of vision therapy taught today.^{11,12}

On pages 164 to 178, Peckham discussed forms for recording examination results and training progress. He proposed a graph system for showing improvements with training and suggested that Kratometer users form a central collection of these graphs: "An accumulation of graphs showing the results of exercises will advance our knowledge and proficiency in this work, show us what may be expected in certain types of cases, teach us how to discriminate between different types, enable us to avoid wrong diagnoses." (page 178) A reviewer of this book opined that "every optometrist should read it."¹³

Other Books by Ray Morse Peckham

The first parts of *Binocular Balance: A Home Study Course in Practical Optometry* started being distributed to subscribers in 1926. A typescript copy of a portion of this document in the Indiana University Optometry Library has copyright dates of 1926 and 1927 on various chapters. Copies in other libraries apparently carry dates from 1926 to 1932.⁹ A copy of one of Peckham's other publications indicated that this correspondence course was to have 60 chapters when completed.¹⁴ The chapters in the typescript I examined ranged in length from four to twenty pages. Content included such topics as basic neuroanatomy and neurophysiology, muscle physiology, visual motor pathways, phoria and fusional vergence measurements, effects of prisms, accommodation, convergence, axes and angles of the eye, and the cross cylinder test.

Peckham published a 59 page monograph entitled *The Non-Operative Correction of Squint: Manual of Instruction for the Squint-Korector* in 1930. This booklet described the Squint-Korector and its use in vision training for strabismus. The Squint-Korector was a rotator designed by optometrist T.J. Arneson, consisting of a large disk with a large E, to which any one of three brightly colored fixation targets could be attached. The disk was rotated by a motor, and a rheostat controlled the rate of rotation. Training started with monocular exercises conducted with the rotator positioned relative to the patient such that ocular rotations would be done in an abducted position for esotropes and in an adducted position for exotropes. Then binocular rotations were done in stages with varying amounts of prism. The booklet included notes on variations in procedure for different types of strabismus and a separate section with four pages of observations and recommendations contributed by T.J. Arneson.

In 1931, Peckham published the 368 page book *Squints and Heterophorias*. The text of the book is divided into two parts: Part I, Squint and its Characteristics, and Part II, Differential Analysis of Squint Types and Variations in Treatment. In Part I, there are chapters on varieties of strabismus, comitance and incomitance, amblyopia, prism prescription, and the use of retinoscopy and ophthalmometry in strabismus. The opening chapter suggests that anatomical theories and Worth's fusion theory do not completely explain strabismus and that innervational factors are of critical importance. In Part II, after a chapter on classification of strabismus, there are six chapters on types of esotropia, six chapters on types of exotropia, a chapter on hypertropia, and a chapter on exercises in strabismus cases. I was surprised to find a review of this book in the *Journal of Nervous and Mental Disease*. The review was quite favorable and said toward closing: "One feature of the work intrigues us. It is that the author does not isolate the eye from the rest of the body as is so often done in discussions of diseases of this or that organ....the author is really curious about reality, so far as causation is concerned, and is not satisfied with description solely."¹⁵

Comments

It is apparent that Ray Morse Peckham was admired by his contemporaries. An editorial in the *Australian Optometric Gazette* was quoted as saying that "...it is very rarely indeed that one can read of such truly original work as that which R.M. Peckham sets out in his article, 'The Functional Principles Involved in Prescribing Prisms'."¹⁶ The

editorial also put forth that "...such men as Cross and Peckham set inspiring examples of what Optometrists can be."¹⁶ An obituary in the *Optical Journal and Review of Optometry* called him "one of the greatest optometrists."¹⁷ And an obituary in the *Journal of the American Optometric Association* said that "Peckham's name will stand out prominently" and called him "a crusader in behalf of professional advancement and scientific research."¹⁸

In spite of the recognition of his contributions from the optometrists of his own time, Peckham is not well known today. I did not find any entries for him in the indexes of *Hindsight* or the *Newsletter of the Optometric Historical Society*. Peckham did draw the attention of one present-day writer who suggested that Peckham's "landmark book" *The Modern Treatment of Binocular Imbalances* helped to plant the seeds of optometric vision therapy.¹⁷ Peckham's name does live on in one vision training procedure that can be used in accommodative excess to encourage relaxation of accommodation. The Peckham procedure uses base-in prism to cause divergence, potentially leading in turn to decreased accommodation.¹⁸

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"There Was No There, There"

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The late famous writer, Gertrude Stein, has often been quoted when referring to her home town of Oakland, California, as saying "There is no there, there." I have modified this rather snide/derisive remark by replacing the word "is" tentatively with the word, "was". [In fairness, Oakland, a city in the East San Francisco Bay Area has shown signs of growth, enhanced status, and development in recent years.] It is located just to the south of Berkeley.

I have adopted this quotation as being quite descriptive of the status of Low Vision care, research and practice /in years past/. So saying, there have always been quite talented individuals contributing to this worthy aspect both of optometric and ophthalmological care and research! So saying, it has been a great challenge to address the real needs of the relevant affected populations in this field in terms of provision of adequate care, research, training of practitioners (and their affected patients), and obtaining inclusion for support of, and reimbursement for care provided in low vision. With the general aging of the population, and with growing retirements of the "baby-boomer" generation born in the years immediately following WWII, we must expect a real increase of affected individuals seeking low vision care in coming years!

I first became deeply interested in low vision and low vision care through the late Father Thomas Carroll of Boston's Catholic Guild For All The Blind. At that time, I was quite young and had just been named Executive Secretary of the Subcommittee on Vision and Its Disorders of the then National Advisory Council of the National Institute of Neurological Disorders and Blindness (NINDB). Father Carroll was a member of the latter Council. He and I spoke at length a number of times, but sadly, I never met this kind, thoughtful, often quite funny, and very persuasive gentleman! Prof. Bernard Becker, Chairman of the Department of Ophthalmology (and, at that time, my supervisor) at Washington University in St. Louis, chaired the Subcommittee and also served upon the NINDB Council.

I remember well the time period, some time later, when I, along with the late Dr. Charles Schepens of Boston (a truly distinguished retinal surgeon and dedicated supporter of low vision care), were seeking to increase NEI research support for low vision research and care during our contemporaneous terms on the National Advisory Eye Council, National Eye Institute (NEI), National Institutes of Health (NIH). We found that "the portfolio" of NEI grant support in the general topic area of "low vision care and rehabilitation" was, to say the least, deficient! [Activity in this sphere/activity area was

one of the two topics with which the NEI was charged (and instructed to address) by the U.S. Congress when the legislation leading to formation of the NEI was drafted.]

Together, Dr. Schepens and I sought and found support (from/by the National Advisory Eye Council) for "High Program Relevance" for research grants related to this topic. We pressed for and received wide publicity by the NEI for the action we initiated. High Program Relevance meant that if a grant application did not make a sufficiently high priority score to be funded at that time, and if it "approached the acceptance score," an award of high program relevance /could/ lift that grant (or such grants) above "the pay line". After this major triumph at Council, separately, we, and the NEI, contacted all individuals who might conceivably participate in this activity. That is, we wanted them all to know of the special opportunity for research support in Low Vision Care and Rehabilitation. In candor, as a result, there was very little response over a period of a few years, either in low vision care and/or enhancement of research resulting from this activity! Sadly, after a year or so, we had to recognize there was, effectively, "no, there, there!" So saying, one must note that those already working on low vision were very busy folks, and had limited capacity for growth.

We realized that what was needed was a fundamental enhancement of this aspect of eye-care provision at all levels, and creation of added appropriate interest groups and clinical programs within the eyecare community. Charles Schepens created an organization through the Retinal Associates with which he was affiliated in Boston, and we both served on its guiding Committee for some years. Other attempts were made to advance this area within ophthalmology and optometry as well as through the NIH. Dr. Constance Atwell rather effectively led NIH efforts in this area (for quite a number of years!) and received support for this activity from Carl Kupfer, Director of the NEI. So saying, while stronger today, this field within the eyecare professions could still benefit from further enhancement in order to meet problems associated with population growth in the coming decades, and with the continued effective aging of the population!

The La Guardia Conference – The Meeting that Changed the Profession

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Editor's Note: *What follows is based on a presentation delivered by Dr. Alden N. Haffner at the meeting of the Optometric Historical Society in Orlando on February 13, 2009 in conjunction with the Annual Meeting of the American Academy of Optometry.*

The La Guardia Conference, so named since the participants met in an airport hotel adjacent to the La Guardia Airport in New York. The meeting was held on January 16, 1968. It is the view of many in the profession that this was a critically important meeting that changed the profession of optometry forever.

The first state optometry licensure was passed in Minnesota in 1901. Licensure for all of the other states was completed in 1924.

The 1901 statute like all of the others defined the scope of the legal practice of optometry. In spite of there being a steady growth in educational requirements from six months to six to eight years, there was no growth in the scope of practice notwithstanding the enormous growth in educational background.

What was created was an imbalance between the scope of responsibility and educational requirements. There was rumbling and discontent among the younger optometrists who were dissatisfied with the imbalance between the scope of responsibility and educational preparation.

Laying the Groundwork for La Guardia

The voices of discontent were widespread among various constituencies. A doctorate was conferred but the responsibility level of the optometrist stayed at circa 1901!

It was decided to call a meeting with carefully selected prospective attendees (the co-conspirators). Don't keep the meeting too much of a secret and arrange for discreet leakages. Invite smart people with balanced views. Invite people with open minds. Invite people who are committed to progressive optometry.

Regrettably no official records were carried of the meeting. There may have been as many as 26 participants. Included were Drs. Gordon Heath, William Baldwin, William Hazlett, Norman Wallis, Spurgeon Eure, Irvin Borish, Milton Eger, Charles Seger and me.

Five questions or area of concern were isolated:

- 1) The central question was whether optometrists should seek legislation to use drugs for diagnostic and therapeutic purposes.
- 2) If the consensus was affirmative, how would the group roll out this philosophy to the optometric community?
- 3) How could the schools and colleges of optometry carry a very large burden in the proposed effort? And would they?
- 4) How to enlist the central involvement of the state optometric associations and the American Optometric Association?
- 5) And would I – Haffner – be willing to deliver the keynote address at the New England Congress of Optometry in Boston and formally propose this major change for optometry. I had already been invited to give the Keynote Address at this meeting.

The answer to the first question was in the affirmative and the rest of the meeting time was spent working out the details of implementation as listed in the other four areas of concern.

Keep in mind that the La Guardia Conference was January 16, 1968 and the New England Congress of Optometry was scheduled for March 17, 1968. I labeled the topic of my address to be “The Evolving Health Care System in the American Democracy’s Welfare State and the Potential Role of the Profession of Optometry.” This paper was published in the June, 1968 issue of the *New England Journal of Optometry*.¹

On the Record

Let me share with you the introductory paragraph to that speech:

“New England, the birthplace of America’s rich heritage, has been a fount of leadership and excellence in optometry and I assure you that I respect and admire both. The invitation asked that I talk about the substantive and dramatic changes taking place in health care on the American Scene, I realized that it provided an opportunity, not only conceptually to reassess and reappraise this immensely important movement but, to reevaluate the position of optometry vis-a-vis its present and potential role for services. By services, I mean optometry’s moral goals in the advancement of human welfare in the furtherance of the knowledge of science and in the betterment the quality of mankind’s life and times. These, moreover, are lofty goals, but, surely, they are unchanged from the very origins of our discipline.”¹

I stated unequivocally that the “Optometrist is a Primary Care Provider.” And the optometrist has a role in the diagnosis and treatment of ocular pathology!

In the lecture, I went on to say, “There are several reasons for making these conclusions and I would like to cite them now. First there is a public need to educate and train more practitioners in eye care for a growing population. This position is supported by a greater public entitlement to health resources, greater health expectations on the part of the people, and more emphasis on quality services. Secondly, the present education and training base of optometry, with relatively minor

modifications and alterations, can well sustain quality performances. And, thirdly, as a primary eye care practitioner, the optometrist should be in service areas such as in the ocular pathology detection, diagnosis and treatment (short of internal surgery) as well as his traditional role in the visual sciences.”¹

Attack by Ophthalmology

The attack came as we in New York were looking toward the establishment of a new College of Optometry. The attack from organized ophthalmology came on the use of drugs, on the diagnosis and treatment of ocular pathology, on conceptualizing the optometrist as a primary care provider.

I well knew that the profession was in for an attack so I pre-empted it with these statements, “Ophthalmology may well claim that this proposal may be viewed as an entrance into medicine through the back door. Nothing is further from the truth. The experience of dentistry and podiatry disclaims that argument emphatically. Ophthalmology may well ask the question of the future of its discipline. It seems to me that the medical and surgical skills of ophthalmology might be turned to include the other critically needed special talents in neurology, neuro-ophthalmology and internal ocular surgery.”

Attack by Optometry

My talk before the New England Congress stated that “Many leaders in optometry may fear that the introduction of additional skills in optometry may divert the orientation of the profession from the essentially functional and behavioral approaches which have meant so much to the advancement of human welfare in the visual sciences. But I hasten to suggest that modern advances in the field of pharmacology, particularly the area of behavioral drugs, offer considerable promise for control and modification of behavioral functions including visual behavioral. To deter optometry from this emerging area of science because of an artificially erected boundary line appears to be both wasteful and scientifically capricious.”

I met with optometrists from the state of Rhode Island before, during and after the New England Congress. The role of Dr. Morton Silverman begs mention as he encouraged his colleagues to seek legislation and in 1971 Rhode Island became the first state in the nation to permit optometrists to use diagnostic pharmaceutical agents.

Conclusion

In 1970 the American Optometric Association called the Airlie House Conference in Washington, DC to “catch up” with what was taking place in the profession.

The members of the Association of Schools and College and individual colleges made substantial changes in their curricula after 1968. It was no easy task. They faced educational problems, faculty problems, curriculum problems, problems with existing ODs who objected to the move toward medical optometry. And there were problems for the schools with their relationships with state associations.

They did successfully meet the challenges.

My colleagues, ladies and gentlemen: Progress in science, in a profession or in any field of human endeavor was, and is, always difficult. I did not raise this issue for the purpose of adding difficulties to our profession or, indeed, to those of inter-professional relations. Rather I felt it was more from a sense of intellectual honesty, a compassion to better human welfare and from a desire to see the professional discipline of optometry smoothly make the transition to a more meaningful and utilitarian role within the framework of a developing public utility health care system that I discuss this matter.

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The Meeting that Changed the Profession

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To many historians in optometry, the tipping point, the exact time that optometry began its change from a purely vision care profession to a health care profession, was January 16, 1968 in a hotel room at the La Guardia airport in New York. The meeting was called by the then dean of the College of Optometry, the State University of New York (SUNY), Alden N. Haffner. If there ever was a visionary in optometry it was, and still is, Norman Haffner. The meeting involved about two dozen participants, according to Haffner, most of whom were then connected to schools and colleges of optometry. Three were not “school leaders”: Milton J. Eger, O.D., then editor of the *Journal of the American Optometric Association*, Irvin M. Borish, O.D., a private optometrist who was heavily involved in optometric education and research, and Charles Seger, O.D., a private practitioner in California, and then chairman of the American Optometric Association (AOA) Council on Education.

No minutes of the meeting were taken; no report of the happening appeared in the press until 20 years later when Dr. Eger wrote a report of the meeting from his personal notes and memories. It is surprising that to this day relatively few optometrists know of this meeting, what its alleged goals were, and what would transpire in the next two decades as a direct result of that meeting. In one sentence, the results changed optometry forever.

Who attended the La Guardia meeting is not exactly known. We can positively identify, in addition to Haffner, Eger, Borish, and Seger only five more: Gordon G. Heath, dean of the College of Optometry at Indiana University; William R. Baldwin, then president of the Massachusetts College of Optometry (now called the New England College of Optometry); Richard Hazlett, administrator at the Massachusetts College of Optometry; Norman Wallis, then assistant dean of the College of Optometry at the University of Houston; and Spurgeon B. Eure, then president of the Southern College of Optometry. Haffner recalls that there were more in attendance, but can recall only those listed above.

Keep in mind that the first state to license optometrists was Minnesota in 1901. By 1924 licensure for all states was complete. Haffner noted: “The 1901 statute like all of the others defined the scope of the legal practice of optometry. In spite of there being a steady growth of educational requirements from six months to six to eight years, there was no growth in the scope of practice notwithstanding the enormous growth in educational background.”¹

There was an obvious imbalance of the scope of responsibility of optometrists and the educational requirements needed to become an optometrist. This led to

rumbling and discontent among the younger optometrists who were dissatisfied with the imbalance between the scope of responsibility and educational requirements.

Eger in his article in the *Journal of the American Optometric Association*² described the picture of the profession at the time of the La Guardia Meeting: "Historically, optometry was a drugless discipline with little legal responsibility for the health of the eye and the welfare of the patient. Its enemies refused to recognize optometric practitioners as 'doctors' and optometry as an academic profession, let alone a health care profession. They maintained that optometrists were over-trained technicians qualified only to provide vision examinations and eyeglasses to the public. They charged that optometrists had neither the educational or clinical background nor the legal right to use the necessary pharmaceutical agents to anesthetize the eye or dilate the pupil to better detect or diagnose abnormal conditions."

Eger stated that "no agenda or preconceived philosophy was brought to the informal table (at La Guardia) for discussion and no one was restricted as to the type of idea that could be brought forth. They agreed that both meritorious and farfetched brainstorming ideas would receive the same intellectual scrutiny. Many suffered the ignominious fate of the waste basket."²

Participants at the La Guardia Meeting debated for two full days attacking thorny and difficult subjects on how to roll out a philosophy to the optometric community on its need to expand its scope of responsibility. Participants questioned whether the schools and colleges could handle the large burden that would be placed upon them, to wit, provide those in practice as well as students in the schools the necessary tools to diagnose and use therapeutic pharmaceutical agents.

Also debated was how to get the state optometric associations and the AOA to change the previous course and embrace the parameters of an eye health profession.

Conclusions for the group were recalled by Eger in his 20-year after the meeting report. They are as follows:

"1) Optometry must discard its original concept of being a drugless profession dedicated solely to function and must expand its responsibilities to include at least the detection, recognition, diagnosis, and monitoring care of diseases that affect the structure of the eye.

"2) Optometric education should be encouraged to enrich its curriculum and provide the necessary courses of study that would sustain all challenges to provide the optometrist with the expertise to become a primary eye care provider and a primary entry point into the health care system of the United States.

"3) The state laws that govern the practice of optometry in the United States must be brought up to date and include provisions that would allow the optometrist to practice that which he or she is taught....including the appropriate use of pharmaceutical agents."²

After the La Guardia Meeting, in March 1968, Norman Haffner delivered the keynote speech at the New England Congress of Optometry and laid out optometry's future. It was a trailblazing speech, aptly entitled "The Evolving Health Care System in the American Democracy's Welfare State and the Potential Role of the Profession of Optometry." It was published in the *New England Journal of Optometry*.³

In February 1969, the Airlie Conference, a think-tank, was conducted in Virginia under the auspices of the AOA, at which many of the La Guardia ideas were explored with arguments carried mostly by those who attended La Guardia.

In 1971, the state of Rhode Island became the first state in the nation to permit optometrists to use diagnostic pharmaceutical agents. West Virginia became the first state to pass legislation to permit optometrists to use both diagnostic and therapeutic pharmaceutical agents.

Norman Wallis, one of the La Guardia participants who went on to become the President of the Pennsylvania College of Optometry and later the Executive Director of the National Board of Examiners in Optometry, wrote in a personal communication in 1996: "I believe the consensus (of the La Guardia Meeting) was that optometric education should lead the charge on the use of drugs by optometrists."

And, indeed, they did.

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Miscellany

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A Note on the Medical Career of Sir Arthur Conan Doyle

Being a fan of the Sherlock Holmes books and movies, I have been curious about a statement seen occasionally that Holmes' creator, Sir Arthur Conan Doyle (1859-1930), was unsuccessful as an ophthalmologist. That curiosity led me recently to read a 1949 biography of Doyle that was reissued a few years ago with a new introduction. The book is entitled simply *The Life of Sir Arthur Conan Doyle* and was written by John Dickson Carr. I also checked a few dates and details using various online sources.

Doyle studied medicine at the University of Edinburgh, a leading medical school, from 1876 to 1881, completing Bachelor of Medicine (MB) and Master of Surgery (CM) degrees in 1881. In 1880, for several months during a break from school he served as a ship's surgeon on a whaling ship. For a period of time in 1881-82, he again served as a ship's surgeon. In 1882, he briefly served as an associate in a general practice, before setting up his own general practice that same year. Doyle passed the examination for an M.D. degree in 1885.

It is not completely clear from the Carr biography exactly how busy Doyle was in his general practice, but his writing seems to have been a sideline for most of those years. Doyle had been publishing various works of fiction since his days as a student. His first Sherlock Holmes story was published in 1887, after which he gradually started making more money from his writing.

The book leaves the impression that Doyle was a person always looking for a new challenge, and that may have been the reason he decided to close his general practice and study to be an eye surgeon. In December of 1890, he left for Vienna where he "attended eye-lectures" (page 63). He also "visited" Landolt in Paris. Doyle returned to England in March of 1891. In London, "among the fashionable physicians, Dr. Conan Doyle then set up as an eye-specialist. Not a single patient ever rang his bell. After a bout with influenza which nearly ended his life, he made the decision, long under doubt and hesitation, to give up medicine and live entirely by his writing." (page 63) He apparently left medicine completely, except for a period of time from April to July of 1900, when he served as a volunteer physician in the Boer War in South Africa.

So while it is true that Doyle was unsuccessful as an eye surgeon, he had established significant credentials as a physician and was in general practice for several years. I learned from the biography that he also excelled in sports such as soccer and cricket and was active in various political and legal causes. In addition to the Sherlock Holmes books and stories, Doyle also published the Professor Challenger stories,

seven historical novels, plays, pamphlets, verse, various works of fiction, nonfiction military works, and writings on spiritualism.

Biographical Sketches of Some Contributors to Binocular Vision Knowledge

The third edition of my textbook *Ocular Accommodation, Convergence, and Fixation Disparity* was published last year. A new chapter in the third edition is a series of biographical sketches as memorials to persons who made significant contributions to testing procedures and analysis methods for accommodation and convergence and to the understanding of non-strabismic binocular vision problems. Included were Andrew Jay Cross (1855-1925), Frans Cornelis Donders (1818-1889), Glenn A. Fry (1908-1996), Harold M. Haynes (1926-1997), Henry W Hofstetter (1914-2002), Ernest Edmund Maddox (1863-1933), Meredith W. Morgan, Jr. (1912-1999), Ivan S. Nott (1892-1969), Kenneth N. Ogle (1902-1968), Archibald Stanley Percival (1862-1935), Charles F. Prentice (1854-1946), Charles Sheard (1883-1963), A.M. Skeffington (1890-1976), James Thorington (1858-1944), and Albrecht von Graefe (1828-1870). The chapter includes photographs or portraits of all but Thorington. I believe that the photographs of Haynes, Nott, and Percival have not been published previously.

Several persons made suggestions for locating biographical materials or provided photographs or historical information. In that regard, I thank Chuck Letocha, Richard Keeler, and Piers Percival; Linda Draper of the American Optometric Association Library; Doug Freeman and Cris Coffey of the Indiana University Optometry Library; and the staffs of libraries and archives at Pacific University, University of Waterloo School of Optometry, and the College of Physicians of Philadelphia.

Sisters Together in Practice in 1946

While looking through old issues of *Optical Journal and Review of Optometry*, I happened upon the following short notice in the October 1, 1946 issue (volume 83, number 19) on page 74: "Benton, Ill. – Dr. Margaret A. Noland, a graduate of Northern Illinois College of Optometry, has joined her sister, Dr. D. Jeanette Noland, in practice." Seeing that there were not a lot of women in optometry at that time, it must have been quite uncommon for sisters to have been in practice together in that era. Can anyone give any other examples or provide any information on the Noland sisters?

History Articles in January, 2010 issue of *Clinical and Experimental Optometry*

The journal *Clinical and Experimental Optometry*, a publication of Optometrists Association Australia, often has profiles of notable optometrists and articles of historical interest. There were several such items in the January, 2010 issue (volume 93, number 1), most of them relating to contact lenses. The first item was a guest editorial, "A 50th anniversary celebration," by Nathan Efron on pages 1-2. Efron notes that 2010 marks the 50th anniversary of a paper on hydrophilic gels for biological use by Otto Wichterle, in which the last sentence reads: "Promising results have also been obtained in experiments in other cases, for example, in manufacturing contact lenses, arteries, et cetera." Efron argues that the invention of soft contact lenses by Wichterle is "the most significant discovery in the 20th Century in the field of optometry."

Author Richard M. Pearson presents “A review of the limitations of the first hydrogel contact lenses” on pages 15-25. Publications and archived documents were reviewed to characterize the packaging, hygienic care, performance, flexure, wearing time, oxygen transmissibility, and complications with the original Czechoslovakian hydrogel contact lenses. In addition to the literature search, measurements of water content and dimensions were taken on nine lenses. The conclusion section of the article abstract states: “Problems associated with the Czechoslovakian lenses included packaging and an initial failure to require daily disinfection. Few complications of lens wear were reported, probably due to the comparatively small number of patients fitted and the limited wearing time that they achieved. Delayed disclosure of lens dimensions handicapped the development of a fitting technique. An acceptable visual acuity was attained in selected cases, while reduced acuity may sometimes have been due to uncorrected astigmatism or poor lens quality. The most serious disadvantage was the very low oxygen transmissibility that could result in marked corneal oedema.”

On pages 45-49, there is a profile of noted optometric researcher and educator Michel Millodot, written by Daniel J. O’Leary and Carly S.Y. Lam. The title is “Professor Michel Millodot: A gentle giant of optometry.” Millodot was born in France in 1938 and endured great personal tragedy during World War II. He earned a diploma as an optician in Paris in 1960, after which he moved to Canada. He completed an optometry degree at the College of Optometry in Toronto, now known as the University of Waterloo School of Optometry. After additional study at the Northampton Polytechnic in the United Kingdom, he became a Fellow of the British Optical Association. He earned an M.S. degree in physiological optics from Indiana University in 1965 and a Ph.D. from Brown University in 1970. He has served on the faculty of optometry schools in Canada, the United Kingdom, Hong Kong, and Israel. In addition to a number of significant research papers, he has compiled seven editions of the *Dictionary of Optometry and Vision Sciences* and was co-author of *Dictionary of Ophthalmology*. Among the emphases of the article were the positive influence he has had on many individuals and the important administrative work he has done at optometry schools in Cardiff and Hong Kong. (Millodot discussed his role in 1975 in the change in the name of the Department of Ophthalmic Optics at the University of Wales Institute of Science and Technology to the Department of Optometry in the January, 2009 issue of *Hindsight*)

An additional item of historical interest in the January, 2010 issue of *Clinical and Experimental Optometry* is a review of the book *Contact Lenses: The story*, a comprehensive book on the history of contact lenses. (Also see this issue of *Hindsight* for a review of that book) The journal *Clinical and Experimental Optometry* is available for free online and can be found at:
<http://www3.interscience.wiley.com/journal/123299185/grouphome/home.html>.

Profile of John D. Robinson, O.D.

OHS member John D. Robinson was profiled on pages 2-3 of the Fall, 2008 issue of *The Alumni Magazine of Salus University*. Robinson graduated from Pennsylvania College of Optometry in 1954 and established a practice in Wallace,

North Carolina. His experience as a rural practitioner led him to work hard for the therapeutic drug legislation for optometrists which was enacted in 1977 in North Carolina. Robinson has held positions in a number of optometric organizations, such as the North Carolina State Optometric Society and the American Optometric Association. He was a member of the North Carolina State Board of Examiners in Optometry from 1964 to 1990. He held positions of vice president, secretary-treasurer, and president in the Federation of the International Association of Boards of Examiners in Optometry and positions of secretary, vice president, and president in the National Board of Examiners in Optometry.

Book Review: Contact Lenses: The Story

Contact Lenses: The Story – A history of the development of contact lenses.
Timothy J. Bowden. Gravesend, UK; Bower House, 2009. xli + 743 pages. ISBN 978-0-9558981-0-5. Hardcover, £75.

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This book provides a detailed history of developments in contact lenses and the companies and persons responsible for those developments. The author is a UK optometrist who has worn a variety of different contact lenses and who specializes in contact lens fitting.

The 41 pages of the book's front matter include an eleven page acknowledgements section listing the many persons who gave interviews or provided information, 4 pages of quotations on history and contact lenses, a two page preface by Andrew Gasson, a two page introduction by the author, a two page explanation of contact lens treatment modalities (e.g., disposable lenses, extended wear, planned replacement), and a nine page glossary.

Chapter One, titled "Pre-Contact Lenses," discusses persons who may have had the idea of a corrective contact lens, the making of artificial eyes, and the use of post-operative shells. The author comes down on the "no" side of the debate of whether the famous Leonardo da Vinci drawings depicted his thoughts of a lens on the cornea for the correction of vision problems.

In Chapter Two, the author examines the development of scleral contact lenses. Adolf Müller-Welt (1904-1972) and Josef Dallos (1905-1979) were identified as important early developers of scleral contact lenses as the persons who "really made contact lenses wearable." (page 158) The author credits Lewis P. Cooper, an optometrist from Norfolk, Virginia, with being the first to use contact lenses in the United States. A significant figure in early contact lens work in the United States was William Feinbloom (1903-1985). Feinbloom earned his optometry degree and a Ph.D. from Columbia University. Theodore Obrig (1893-1967) was given credit for being the first to use fluorescein in contact lens fitting in about 1936. Reuben Greenspoon, an optometrist from California, is said to be the first in 1939 in the United States to fit contact lenses made from polymethyl methacrylate (PMMA). Greenspoon also pioneered the use of contact lenses in motion picture special effects in 1939.

Chapter Three is "Development of Corneal Lenses." The author defined corneal lenses as lenses which rest on the cornea without crossing the limbus. It is uncertain when corneal lenses were first used. The first lens material tried for corneal lenses was glass, but weight of the lenses was a problem. The person generally credited with

developing PMMA corneal lenses was Kevin Tuohy, who in 1947 started making corneal lenses from PMMA. Others claimed precedence, including Heinrich Wöhlk, who started making PMMA corneal lenses in Germany in 1946. The author calls *An Introduction to the Prescribing and Fitting of Contact Lenses* published in 1946 by Frank Dickinson and Keith Clifford Hall "The first authoritative UK text book on contact lenses." (page 180) Gas permeable polymers for rigid contact lenses were first developed in the 1970s. I. William Collins of Pottstown, Pennsylvania, was the first reported to have successfully fitted a bifocal corneal lens in 1958, with many patents for bifocal corneal lenses following in the 1960s. Papers on orthokeratology started appearing in the 1960s.

The topic of Chapter Four is "Development of Soft Lenses." Otto Wichterle (1913-1998) is the most significant name in soft lens history for his development of polymers and invention of production methods. The opening pages of this chapter are devoted to Wichterle, but the chapter contains extensive details on numerous persons, companies, and lens developments. In the United States, the Food and Drug Administration (FDA) gave approval to Bausch & Lomb for the Soflens on March 18, 1971, the first FDA approved lens. The author identified English optometrist John deCarle as the inventor of the first contact lenses designed for extended wear. A number of different soft lens manufacturers made toric soft lenses in the 1970s and 1980s, and it is unclear who should be given priority for this development. The first soft toric lens to get FDA approval in the United States was made by Hydrocurve in 1978. By April, 1986, there were eleven soft toric lenses available in the U.S. Bifocal soft lenses were developed in the late 1970s and early 1980s.

Chapter Five is "Development of Disposable Lenses." Michael Bay, a Danish ophthalmologist was the first to produce a lens designed to be worn once and thrown away. Disposable lenses were first introduced to the public by the Johnson & Johnson Company in 1987. Bausch & Lomb followed with a disposable or "frequent replacement" lens in 1988 and CIBAVision in 1989. The first disposable soft toric lens was brought out by CIBAVision in 1992.

The title for Chapter Six is "Development of Silicone Hydrogel Lenses." CIBAVision "Night & Day" lenses were first sold in Mexico in 1998. This was followed by Bausch & Lomb PureVision lenses and the Acuvue Advance from Johnson & Johnson.

Chapter Seven discusses "Major Lens Manufacturers." Histories of five companies are included: Johnson & Johnson Vision Care (previously known as Vistakon), CIBAVision, CooperVision, Bausch & Lomb, and Menicon. Bausch & Lomb is the oldest company making contact lenses that is still operating under its original name.

In Chapter Eight, the author examines "Research and Regulation," with the emphasis being on research. This chapter is organized into a series of historical descriptions of contact lens research agencies, a series of biographical sketches of

noted contact lens researchers, and a short section on regulation with emphasis on the FDA. The agencies discussed are Eurolens Research (UK), Cornea and Contact Lens Research Unit (Australia), Centre for Contact Lens Research (University of Waterloo), Vision Care Research (UK), Optometric Technology Group Ltd., International Society for Contact Lens Research, Contact Lens Research Centre (short-lived), and National Eye Research Foundation. The researchers profiled are Jan Per Bergmanson, Irvin Borish, Patrick J. Caroline, H. Dwight Cavanagh, Harold Davis, Jay M. Enoch, Irving Fatt, Edward Goodlaw, Theodore Grosvenor, Hikaru Hamano, Richard Hill, Brien Holden, Don Korb, Robert Mandell, George William Mertz, Kenneth A. Polse, Maurice G. Poster, Cecil Montague Ruben, Morton D. Sarver, Max Shapero, and Brian Tighe.

Chapter Nine is "A chronology of various landmark optical and world events" (pages 589 to 676), which lists various events by year up through 2007. This is followed by a twelve page bibliography. The book contains three appendices. The first appendix is a discussion of nineteenth century and early twentieth century English artificial eye makers. The second appendix is a one page listing of publications by Josef Dallos, and the third is an eight page listing of awards and patents to Otto Wichterle. Closing out the book is a 37 page index.

The emphases in this book are the development of new types of contact lenses, the history of contact lens companies, the inventors responsible for different types of contact lenses, and the pioneers in contact lens fitting. The extensive detail in this book will make it the preferred reference book on those topics. I suspect that even the most seasoned and informed contact lens specialist would find names of persons and companies of which he or she is unaware in this comprehensive book.

Book Review: Galileo's Glassworks: The Telescope and the Mirror

Galileo's Glassworks: The Telescope and the Mirror. Eileen Reeves. Cambridge, MA: Harvard University Press, 2008. 231 pages. ISBN-10: 0-674-02667-5. ISBN-13: 978-0-674-02667-4. Hardcover, \$21.95.

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On October 10, 1608, Dutch Spectacle maker Hans Lipperhey applied for a patent for a telescope with quartz lenses. In the next few weeks others made claims about knowing how to make telescopes. In the author's words, "This book considers how and why information about the telescope was transmitted, suppressed, garbled, or misconstrued..." (page 2) The author also notes that the book is concerned with the following questions: "What did Galileo know of the invention, and when did he know it?" (page 2) The author used information from letters, newspapers, various periodicals, literary publications, and other documents to address those issues.

In the sixteenth century, there were many legends of mirrors used in antiquity to see miles, even hundreds of miles, away. For example, there were legends of such a mirror in Alexandria for watching for approaching ships. Another has Julius Caesar in Gaul using a mirror to view fortifications in England.

Perhaps in part due to those legends, most attempts in the late sixteenth and early seventeenth centuries to make systems for long distance viewing involved lens and mirror combinations rather than strictly lens systems. The author also makes the point that there were bigger claims for what could be done with mirrors than with lenses in the sixteenth and seventeenth centuries because people were more familiar with lenses through the popularity of eyeglasses. The author suggests that Galileo's knowledge of attempts to make lens and mirror combination systems may have led him and his acquaintances to dismiss the possible effectiveness of the Dutch invention.

Galileo's friend Paolo Sarpi learned of the Dutch invention in November of 1608. Sarpi appeared to think initially that it must be a lens and mirror combination. Galileo did not mention the Dutch invention in any of his letters until August, 1609, when he noted that he had a telescope based on the Dutch design. Galileo had a "rather sparse correspondence" in late 1608 and the first half of 1609 due to various personal and teaching obligations and other ongoing scientific investigations. Galileo's observations of the moon were mostly made in November and December, 1609, and his observations of the moons of Jupiter were made in January of 1610. His book *Starry Messenger* was published in March of 1610.

The book also discusses various opponents of Galileo and their attempts to discredit him. The book includes a fifty page section of bibliographical notes and an index. The author is Professor of Comparative Literature at Princeton University.