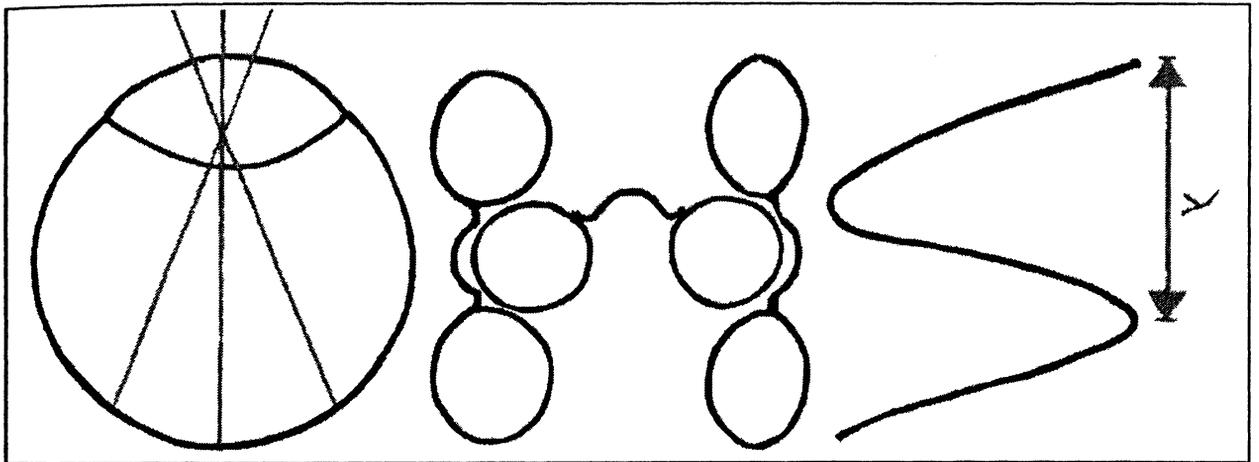


# HINDSIGHT

## Journal of Optometry History

January, 2007  
Volume 38, Number 1



INDIANA UNIVERSITY

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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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The official publication of the Optometric Historical Society was previously titled: 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 begins in 2007 with volume 38.

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.

# HINDSIGHT: Journal of Optometry History

January, 2007

Volume 38, Number 1

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Journal subscriptions are registered by joining the Optometric Historical Society. See page 27 for a membership application form. The cost for institutional or library membership is the same as for personal membership.

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

## OHS News

### Officers and Board Members

Congratulations to Walter Chase and Jay Enoch for each being elected to serve another term on the OHS Board. Listed below are the OHS Executive Board members and the officers for 2007. The year of expiration of each Board member is given in parentheses.

President.....Melvin Wolfberg (2009)  
Vice-President.....Jerry Abrams (2009)  
Secretary-Treasurer.....Bridget Kowalczyk (2008)  
Trustees.....Walter Chase (2010)  
Jay Enoch (2010)  
Chuck Haine (2008)  
Doug Penisten (2007)

The term of Board member Doug Penisten will expire at the end of this year. Please submit your nominations for this Board position by March 31, 2007, to

David A. Goss, Hindsight Editor  
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or email: dgoss@indiana.edu

### By-Laws Change

Twenty-four OHS members responded to the ballot enclosed with the October, 2006 issue of *Hindsight*. The results were: For-23, Against-0, Abstain-1. Article III, Section 4 of the OHS by-laws will now read:

The dues in this society shall be \$25.00 per calendar year for regular membership, \$50.00 per calendar year for patron membership, and \$250.00 for a lifetime membership.

### Change in This Publication and Enclosed Announcement

This issue of *Hindsight* marks its conversion from *Hindsight: Newsletter of the Optometric Historical Society* to *Hindsight: Journal of Optometry History*. We hope that this change will contribute in some small way to the study and preservation of optometry history. Enclosed with this issue is an announcement concerning the new form of *Hindsight* and giving information on membership in OHS. Please consider sending copies of this announcement to potentially interested colleagues or posting it in an appropriate location. An electronic version of the announcement can be obtained from the Editor.

# The Status of the Study of Optometry History

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## **Abstract**

*The status of optometry history was examined by searching online databases for publications on the history of optometry and the history of other health care professions and some medical specialties. There have been many fewer publications on the history of optometry than on most other health care professions or on medical specialties. Further, there are common misconceptions about optometry history even among its own practitioners. The importance of the study of optometry history is emphasized and suggestions to improve its status are discussed.*

**Key words:** *history of healthcare, history of optometry.*

## **Background**

Optometry is an independent health care profession that has contributed to the comfort and well-being of mankind, has greatly expanded and enhanced its educational requirements, and has made important scientific contributions in the remediation of visual anomalies. The unique heritage of optometry offers an interesting example of how a trade learned by apprenticeship has blossomed into a mature scholarly profession. But is the history of optometry being studied and communicated adequately? This paper will attempt to assess the status of the study of optometry history.

## **Numbers of Papers Published on Optometry History**

One way to examine the state of scholarship on optometry history is determine the numbers of published papers on the topic and compare that to numbers for comparable disciplines. Numbers of papers were derived from two online sources: the History of Science, Technology, and Medicine database and PubMed.

First we will consider the results from the History of Science, Technology, and Medicine database. This online resource contains the complete contents of four major annual bibliographies for the history of science and health care: Isis Current Bibliography of the History of Science (1975 to the present), the Current Bibliography in the History of Technology (1987 to the present), Bibliografia Italiana di Storia della Scienza (1982 to the present), and Current Work in the History of Medicine (1991 to the present). The items indexed in the database include journal articles, conference proceedings, books, book reviews, and dissertations. Keyword searches were done on January 10, 2007 using the names of various health care professions and various medical specialties. No limits, such as by language or type of publication, were used. The numbers of items retrieved for each of the keywords listed below are as follows:

audiology – 25  
nephrology – 374  
nursing – 3492  
optometry – 82  
otolaryngology – 431  
pharmacy – 4516  
psychiatry – 4323

dentistry – 1504  
neurology – 1838  
ophthalmology – 958  
orthopedics – 481  
pediatrics – 1303  
podiatry – 39  
psychology – 8996

Optometry being the third largest health care profession behind medicine and dentistry, one might expect the number of publications to be similar for dentistry and optometry. However, the number of publications on the history of dentistry was more than 18 times the number of publications on the history of optometry! One might also expect the number of publications on ophthalmology history and on optometry history to be similar, but the number on the history of ophthalmology was more than 11 times the number of publications on the history of optometry!

Three periodicals were responsible for 61 of the 82 items on the history of optometry. These periodicals and the corresponding numbers of items were: *Journal of the American Optometric Association* (23), *Hindsight: Newsletter of the Optometric Historical Society* (22), and *Optometry and Vision Science* (16). In contrast, for ophthalmology, there were numerous different journals that featured at least somewhat regular historical publications.

In PubMed, a search was performed on “history of optometry.” Such a search on PubMed is interpreted as “history AND optometry,” thus including variants of case history as a subject heading. The results of the search were individually examined and the titles which appeared to be about the history of optometry were counted. Only English language articles were included. Similarly, searches were done for history of dentistry and history of ophthalmology. The ten year period from 1997 to 2006 was searched on January 10 and 11, 2007. The numbers of articles found published over that ten year period were as follows:

history of optometry – 44  
history of ophthalmology – 376  
history of dentistry – 215

Here also there is a disparity between numbers of publications on the history of optometry and other disciplines. There were 8.5 times as many articles on the history of ophthalmology than on the history of optometry, and 4.9 times as many on the history of dentistry than on the history of optometry.

### **Periodicals on the History of Health Care**

Another gauge used to examine how the study of optometry history compares to the study of the history of other health care professions was to determine whether optometry and other professions have comparable numbers of history publications. *Hindsight: Journal of Optometry History*, is the only serial devoted specifically to

optometry history. The History of Science, Technology, and Medicine online database was searched for titles of periodicals covering the history of health care. Also a book chapter on library collection development in the area of health care history was examined.<sup>1</sup> The following is a list, which should not be considered exhaustive, of the some of the periodicals in various professions:

Dentistry – *Dental Historian*, *Journal of the History of Dentistry* (formerly *Bulletin of the History of Dentistry*), *Newsletter of the History of Dentistry Research Group*

Medicine – *Bulletin of the History of Medicine*, *Canadian Bulletin of Medical History*, *Clio Medica*, *Indian Journal of History of Medicine*, *Journal of the History of Medicine and Allied Sciences*, *Medical Historian*, *Medical History*, *Social History of Medicine*, plus periodicals dealing with various medical specialties, such as *History of Paediatrics*, *History of Psychiatry*

Nursing – *History of Nursing Society Journal*, *International History of Nursing Journal*, *Newsletter of the Canadian Association for the History of Nursing*, *Nursing History Review*

Pharmacy – *Pharmaceutical Historian*, *Pharmacy History Australia*, *Pharmacy in History*

There do not appear to be any periodicals specifically on the history of ophthalmology, but as noted above, numerous ophthalmology journals have regular contributions on historical topics. The search did not uncover any periodicals on the history of podiatry or the history of audiology. So using this parameter, optometry appears to be ahead of audiology and podiatry, but again behind other health care professions.

### **Attitudes and Misconceptions about Optometry History**

Perhaps the most pervasive misconception about optometry is that it is a new occupation, beginning about a hundred years ago.<sup>2</sup> It sometimes seems to be portrayed as suddenly springing to life with the passage of licensure laws in the United States in the early twentieth century. Spectacles were invented in the late thirteenth century.<sup>3,4</sup> Hirsch and Wick<sup>5</sup> identified the beginning of the fourteenth century as the approximate time of the start of “early optometry.” One landmark that clearly shows optometry as being centuries old is the book by Daza de Valdes, published in 1623, which discusses aspects of vision, spectacles, and optometric procedure, including case history, test measurements, analysis, and prescription.<sup>6</sup>

One disturbing attitude that seems all too common among optometrists is that it is only in recent years that optometry has become a sophisticated profession worth practicing. The apologetic stance of many optometrists about the history of the profession may reflect an ignorance of the true nature of the development of the profession. Hofstetter<sup>7</sup> noted that his studies of optometry history showed that “clinical optometry did indeed have an honorable heritage, albeit under the rubrics of ophthalmic optician, sight-testing, spectaclemaker, and other identities. The history of

spectaclemakers guilds, the role of spectacle styling, the appearance of spectacles in classic oil paintings, reference to spectacles in early literature, the long-prevailing opposition to optical correction by medical authorities, the involvement of religious scruples, ophthalmic instrument inventions, apprenticeships, optical schools, and dozens of other bits of optometricana clearly document optometry's centuries-long existence and emergence from a prestigious and sophisticated handicraft to its present academic stature, a truly proud history which includes many prominent and accomplished personalities."

An observation that one can make about ophthalmology and optometry publications is that there are many more published biographical sketches of well known former ophthalmologists than of notable former optometrists. It may be possible that there is more existing biographical data for ophthalmologists. But perhaps this is another instance of where the often apologetic frame of mind of optometrists concerning their professional forebears has negative consequences.

### **Why Should we be Concerned about the Study of Optometry History?**

Based on the information collected, it appears that optometry isn't doing a good job studying, presenting, or appreciating its history. Is it worth the effort to do a better job? I believe it is, and here are the reasons why:

(1) The most obvious reason is that we learn from the past. There have been those who have tried to dissuade me from the study of optometry history, saying that is a waste of time to be looking back, what we need to be doing is looking ahead. To me, it can be an enormous waste of time to be looking ahead without also looking back. Perhaps it was best stated by George Santayana (1863-1952): "Those who cannot remember the past are condemned to repeat it."<sup>8</sup>

(2) Learning about the history and development of a profession teaches one about its ethics and its perennial problems, about the cultural atmosphere that has shaped it, and about the nature of professional life.

(3) Understanding the unique heritage of optometry can give its students and practitioners pride in their profession. Penisten<sup>2</sup> noted that "what you know about your own history, and that includes professional history, influences not only your feelings for your profession, but also your own self-image."

(4) By communicating the legacy of optometry's contributions to society, it will be better respected as a profession.

(5) It provides a means of showing honor and respect to the persons who have contributed to the profession and to human visual welfare. It can also help to advance correct attribution for such contributions.

(6) Lastly, history well told can be fun and interesting.

### **What can we do to Promote the Study and Appreciation of Optometry History?**

We can individually, as well as collectively as the Optometric Historical Society, take steps to improve the status of the study and appreciation of optometry history. Some of these steps could include:

(1) Attempt to advance in our colleagues and students a correct knowledge, a pride, and an appreciation of the unique heritage of optometry.

(2) Encourage other optometrists, vision scientists, and interested persons to join the Optometric Historical Society or provide them with gift memberships. Encourage libraries of optometry, vision science, or ophthalmology to subscribe to *Hindsight: Journal of Optometry History*.

(3) Write your personal professional reminiscences for publication. Write for publication your remembrances of significant instructors, influential colleagues, or other persons participating in the development of optometry. We would be pleased to publish appropriate recollections in *Hindsight*, for documentation of such is included in the purposes of the Optometric Historical Society.

(4) Volunteer to be a Contributing Editor to *Hindsight* and make at least one contribution per year.

(5) Persons who are inclined to do historical research should do so and publish their findings.

(6) Encourage institutions and organizations to maintain suitable archival collections. Give items of historical interest to an appropriate archival repository. I can personally attest to the importance of archival materials for the conduct of historical research.

In 1996, Hofstetter<sup>7</sup> observed that "*Hindsight's* role is to dispel our depressing ignorance of optometric history." Let us rededicate our efforts to that end.

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## **Hans Goldmann's Golden Year in St. Louis: Daily Research Bench Rounds with The Master!**

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### **Abstract**

*The late Prof. Dr. Hans Goldmann took a well-earned year of sabbatical leave, shortly after having stepped down as Rector Magnificus of the University of Berne, Switzerland and from his Chairmanship of the Department of Ophthalmology in the School of Medicine at the University of Berne, Switzerland. Hans spent that sabbatical year at the Department of Ophthalmology at Washington University Medical School in St. Louis, MO. He and Bernard Becker (and many of us in the Department) were long-time associates and friends. And what a year it was! Those who were present still speak of it with awe and respect. What fun, what excitement – what work!*

*Each of us had a variety of fascinating personal interactions with Hans. However, a single set of salient experiences stands out in all of our memories! Early-on, he established a daily routine of going from laboratory to laboratory on the 10<sup>th</sup> and 11<sup>th</sup> floors of McMillan Hospital in order to conduct daily bench rounds with each of the individual faculty/investigators. Mornings, he would appear in a well pressed and fresh lab coat, greet us with a gleaming smile, and upon entry into your lab, he would ask, "Huh, Huh, so what's new today?" And it was expected that you would have new data, or experimental results to show to him! He would then ask penetrating questions about your work, techniques employed, the data presented, etc., as well as make suggestions for improvements. He also usually had some kind words of encouragement. If you did not have something new, he had something new and exciting to tell you of his own! Questions on the latter were almost always considerably more difficult to answer, than if you had something new to offer!*

*As a result, the research faculty and staffs were literally driven to a creative frenzy in order to have something new to discuss or to demonstrate when the good Professor made his anticipated daily entry into the laboratory. The faculty operated in high gear. Every morning, the techs would lean out of our doors, and indicate to their investigator toiling away, "He is coming very soon; he is in the next lab now!" Oh, to finish in time!*

**Key words:** *(The late) Prof. and Rector Emeritus Hans Goldmann; Department of Ophthalmology, Washington U. Medical School in (St. Louis, MO); U. Berne Department of Ophthalmology (Switzerland); glaucoma; utrocular discriminations = the ability to distinguish which eye was stimulated by light.*

## Background

Hans Goldmann (1899-1991, Figure 1) was a certainly one of the World's most outstanding ophthalmologists. He had incredibly broad interests and an amazingly keen intellect. His personal library, contained on shelves which ran from floor to ceiling, adorned most rooms in his lovely Berne home (and much of his second/vacation home in Brissago). They contained a remarkable collection of all manner of books on ophthalmology and medicine in general, on vision science, on optics, and on a variety of interests of Hans (many of his interests lay outside of medicine and optics). The author had the extra-ordinary good fortune to spend extended time periods in his company and at his homes for more than a decade. While technically the writer was not his student, he came to regard Goldmann's contributions to his understanding of *many issues* as seminal. For eight years the author served as the liaison between ongoing NIH sponsored research organized and administered by Dr. Murray Goldstein of the NINDB and its successor organizations. This activity was jointly undertaken by the Department of Ophthalmology at Washington University in St. Louis, Chaired by Professor Bernard Becker, and by the Department of Ophthalmology at the University of Berne, Switzerland, Chaired by Professor Hans Goldmann. Much of this work addressed glaucoma, but certainly not all of it.



Figure 1. Hans Goldmann, 1899-1991.

In this role, for the better part of a month each year, the writer was often invited as a guest in Hans and Erna Goldmann's home(s) either in the Swiss Capital, Berne, or in Brissago which was on Lago di Maggiore near the Italian border. For some time, the Goldmann's owned two homes in Brissago, one directly on Lago di Maggiore, and a second home some distance up the hillside from the Lake. It was in the latter home that the Goldmann's lived when they were at the Lake. On occasion, the Goldmann's kindly offered Becky and the writer the pleasure of staying in the lakeside home. It was common for Hans and the author to spend quite a number of days working together during each visit. They discussed and debated data, protocols, approaches to problems, etc.

Together Goldmann and the author would take walks, visit local restaurants, or often, Hans' wife Erna would make rather simple but always tasty meals. After dinner, Hans would build a small fire in a quiet niche outside his hillside house overlooking Lago di Maggiore, and together he and the writer would look-out across this body of water at the twinkling lights of the scattered houses and at the myriad of stars above. Hans often brought out a large woven-raffia(?) covered bottle of Brolio Chianti Reserva or a fine white wine from Orvieto to be shared, and he would sing folk songs of his native Czechoslovakia and of the Swiss Cantons well into the night! For the writer, these were golden times.

Enoch, the writer, assumes Bernard Becker, Robert Moses, and probably others of the St. Louis group had similar close relationships. The two faculties were indeed very close!

Robert Moses from St. Louis took a one-year sabbatical in Berne with Goldmann. Bob used to tell of his first day(s) in Berne, at which time he was invited to join Professor Goldmann when he conducted regular bed rounds. After introductory presentation of a case by a resident, Goldman commented at some length on the patient's management. Apparently Bob Moses (as he might do in St. Louis), said something like, "But Professor have you considered the XYZ approach...." Immediately following this question, the assembled group of students, residents, fellows and faculty emitted an audible gasp! Apparently, it was unheard-of for someone to question Herr Professor. Knowing Hans well, he loved it!

Franz Fankhauser, one of the senior faculty at Berne (latter quite famous in his own right!), worked both with the late Paul Cibis and the author during his extended stay in St. Louis. Franz was the writer's first post-doc (or was the writer his – does it matter?) – the author taught Fankhauser much about retinal optics and retinal functional properties; Franz brought the writer a gift from Hans, an advanced version of a Haag-Streit quantitative perimeter, and taught the author how to use it properly! Franz's first wife Verena served as the authors's lab technician (sadly, this lovely lady later died of cancer); Baldur Gloor, and others of the Berne group spent extended time periods in St. Louis as well. Thus, when Hans Goldmann came to St. Louis on his sabbatical, there were numerous existing close friendships, often based on common interests.

There is uncertainty as to the precise year when Goldmann spent his sabbatical year in St. Louis. The writer consulted Bernard Becker and Franz Fankhauser on this matter. It was before publication of a joint research paper by Goldmann and the writer<sup>1</sup> was published in June, 1969, but it was after Hans retired from his administrative posts in about 1964.

### **Hans Goldmann's Daily Bench Rounds**

Shortly after his arrival in St. Louis, Hans started to conduct "daily research bench rounds" (for want of a better term) in the Department of Ophthalmology at Washington University in St. Louis. This started out rather casually, but, in a rather short time, this developed into a daily ritual which endured until he returned home – and *it was enthusiastically embraced* by the faculty as a whole, both individually and collectively. We loved it. The writer had never heard of, nor had he ever seen such a thing!

It all appeared so very simple. That said, the writer assures the reader it was no simple matter. The diversity of active research projects at St. Louis was broad indeed, and the breadth of knowledge needed to engage in the sort of give and take daily performed by Goldmann was very extensive. Every morning, Hans would appear in a well pressed and fresh lab coat, greet each of us in our own laboratory with a gleaming smile, and ask enthusiastically, "Huh, Huh, so what's new today?" And it was expected that you would have new data, or newly determined experimental results to show to him! He would then ask penetrating questions about your work, techniques employed, the data presented, etc., as well as make suggestions for improvements. He also usually had some kind words of encouragement. If you didn't have something new, *he had something new, different, and exciting to tell you of his own!* Questions on his new thoughts were almost always considerably more difficult to answer, than if you had something new to offer!

As a result, the research faculty and staffs were literally driven into a *creative frenzy* in order to have something new to discuss or to demonstrate when the good Professor made his anticipated daily entry into the laboratory. All of us operated in highest gear. Every morning, the individual technicians would lean out of their doors, and indicate to their investigator toiling away, "He is coming, he is in the next lab now (the Pathology lab, Bob Moses' lab, Nancy Newman's lab, etc.)" Oh, to be able to finish in time! It was really something to see three or four techs leaning out their individual laboratory doors in anticipation. The writer never has seen the equivalent activity performed before or since.

### **What if you did not have something new?**

It is useful to present, as an example, an instance when the author did not have something new to discuss with Hans. On one such occasion, Hans posed approximately the following question to the author, "If I shine a light into *one* of your two eyes, and you were not told which eye had been stimulated, could you state properly which of the two eyes had been stimulated/excited?" In candor, the writer did not know the answer. Hans then went on to explain, in many species not having binocular vision,

the individual animal's survival depended upon correctly making such judgments. With advance of the eyes forward in the head, and both eyes facing forward, binocularity evolved. Hence, there was reduced need for this particular response capability. Thus, Goldmann properly raised the question, did modern humans retain this particular ancient perceptual capability or skill?

Goldmann and the writer considered this interesting question from a variety of points of view, and together, they decided to put a number of questions to the test. It turned out that this was not a simple task to conduct, because one had to rule out quite a number of clues available to the observer. Further, as we got more deeply into the matter, we looked not only at foveal and central retinal responses, but also at visual performance at different loci in the visual field. And we learned that we needed to determine if there was a practice and/or learning component associated with this form of visual stimulation.

In time, we determined that most individuals retain some degree of this ancient capability, that it proved to be stronger in the fovea and in central vision than in the peripheral visual field, that performance was related to stimulus duration, and, to some extent, practice enhanced this response capability. Additionally, it proved not to be a simple task to manage these data sets statistically, and without bias. In the end, quite a satisfactory result was obtained.<sup>1</sup>

Naturally, Goldmann and the author asked whether previous work had been done on this and/or associated topics? A question arose as to what key word or words one needed to use in order to access available literature. It turned out that a number of prior psychophysical studies had been conducted on related topics.<sup>1-3</sup> Such judgments are termed utrocular discriminations. Utrocular discrimination was defined as the ability to distinguish which eye was stimulated by a luminous stimulus. This term is taken from the Latin *uter*, or *utero* which translates variously as (1) one of two, (2) one from two, or (3) which one of two? To prevent confusion, our paper in (then) Investigative Ophthalmology was titled, "The ability to distinguish which eye was stimulated by light."<sup>1</sup> Smith<sup>2</sup> wrote a then good review of existing studies relating to this topic, and he credited von Helmholtz<sup>3</sup> with first consideration of aspects of the problem (in 1866).

## **Glaucoma**

The author would be remiss if he didn't mention his many discussions with Hans Goldmann on the general topic of the glaucomas during these several years. As noted, Hans was a multi-dimensional individual/ophthalmologist; glaucoma was only one of his interests, but it was indeed a major one. So saying, he often expressed to the author his own uncertainties regarding our collective understanding of these disorders, *per se*; as well as matters associated with detection and management of the glaucomas. Most properly, Goldmann is well remembered for his many contributions to a wide variety of issues associated with studies addressing these diseases. Frans Fankhauser and Sylwia Kwasnieuska recently wrote a major tract titled "Hans Goldmann: The legacy of a titan."<sup>4</sup> The author urges the reader to seek that source for extended citations to the contributions of Hans Goldmann. Fankhauser also called the author's attention to

another article he wrote on Goldmann in *Ophthalmic Surgery*.<sup>5</sup>

Goldmann was clearly troubled by the then definitions of glaucoma and our less than complete understanding of these disorders as a group. He would often return to debates on the glaucomas, *per se*, and particularly to consideration of either or both, ocular hypertension, and low tension glaucoma. [Here, the author quotes from his obituary of Prof. Goldmann published in 1994, rather than to try to reconstruct these thoughts from memory over an even more extended time period.]<sup>6</sup> "He (Goldmann) worried if ocular hypertension was, in part, a 'quiet period' in the development of glaucoma and he sought to determine how to differentiate the initiation of such a quiet period before overt manifestations occurred. Also, he did not believe there was some magic number of measured intraocular pressure which signaled the need for initiation of treatment for open-angle glaucoma. However, he did establish a practical protocol for the University Eye Clinic at Berne. That is, 22.5 mm Hg was used as the dividing line. He encouraged his associate, Theo Schmidt, to conduct extended statistical studies on probability distributions designed to differentiate normal from abnormal intraocular pressures. However, he felt the issue to be complex, and the measurements used were often too imprecise to use as the sole means for discriminating the presence of glaucoma and for defining therapy."

### Summary

Professor Goldmann, during his sabbatical in St. Louis, succeeded in enriching, engaging, and greatly stimulating the ophthalmic research enterprise at Washington University in a most gracious and remarkable way. The writer sought to adopt a number of his methods in his own laboratory in his own day to day interactions with his students, but he could never claim to have succeeded in the manner that Hans did during that golden year in St. Louis! It was not some lightly held judgment which led the author to designate Hans Goldmann as The Master!

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## The 1921 Rochester School of Optometry Yearbook

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In recent issues of *Hindsight*, when Jay Enoch<sup>1,2</sup> wrote about the founding and termination of the optometry program at the University of Rochester, he noted that there also had been another optometry school in Rochester, the Rochester School of Optometry (RSO). In a subsequent issue, Morton Greenspoon<sup>3</sup> wrote about his father Reuben Greenspoon, who attended RSO, and about his father's 1921 RSO yearbook. Morton Greenspoon very kindly allowed me to examine that yearbook. It is such a remarkable document that I thought that *Hindsight* readers might be interested to know more about it.

The yearbook consists of 140 pages plus another 30 pages of advertisements at the end of the book. It was dedicated to the memory of Eduard Kirstein, "a pioneer whose courageous and moral establishment of optical precedents is of redounding benefit to all present-day optometrists and opticians." (p. 3) Following that dedication, a picture of the building housing RSO, and a foreword, there are photographs of Ernest Petry, Dean of the School, and Helen M. Zimmerman, Dean's Assistant and Girls' Advisor. The members of the Board of Directors were listed as: Carl F. Lomb, Bausch & Lomb Optical Co., Rochester, N.Y., President; Royal B. Farnum, President of Rochester Athenaeum & Mechanics Institute, Vice-President; Burt B. Clark, President of Klatorick Optical Co., Rochester, Secretary; William H. Vianco, Treasurer and Business Manager; William H. Briggs, 22 Lakeview Park, Rochester, N.Y., Director; and Harry M. Bestor, Optometrist, 5 Triangle Bldg., Rochester, N.Y., Director.

The faculty of RSO are listed on page 11: Ernest Petry, Dean, Theoretic Optometry and General Optometry; Maurice A. Wilder, Theoretic Optics and Optical Laboratory; H.M. Bestor, Physiologic Optics and Practical Optometry; William H. Doane, Ophthalmology; Dr. John S. Hart, General Anatomy and Physiology; Ralph L. Dublin, Practical Optometry and Pathology; Herbert E. Wilder, Practical and Mechanical Optics; Harry C. Goodwin, Advertising and Business Management; Harold Brodie, Mechanical Drawing; Gordon H. Gliddon, Physics, Physiologic Optics and Psychology; Clarence C. Rogers, Trigonometry, General Mathematics and Optical Laboratory; Clarence Neubauer, Optical Shop Assistant; Helen M. Zimmerman, Dean's Assistant and Girls' Advisor.

A number of pages are devoted to individual photos of the Class of 1921, where they were from, the schools they attended previously, their activities at RSO, etc. There were 47 members of the Class of 1921. Thirty-five were listed as being from various locations within the state of New York, three from Pennsylvania, and one each from Florida, Georgia, Illinois, and New Jersey. Five were from outside the United States: two from Canada, and one each from Colombia, France, and Mexico. Four of the 47 were women. Previous college attendance was noted for nine of the 47. A composite

photo and the names of 36 persons in the Class of 1922 were also included. Twenty were from New York, four from Pennsylvania, two from Maine, two from North Carolina, and one each from Maryland, Massachusetts, Michigan, New Hampshire, Ohio, Vermont, Wisconsin, and Italy.

Starting on page 60 there were three essays, "Optometric Educational Requisites," by Harry Bestor, faculty member, pages 60-63; "The Physical Mixture of Colors," by G.H. Gliddon, faculty member, pages 64-69; and "The Manufacture of the Optometrist's Supplies," by Francis P. Groat, a member of the Class of 1922, pages 70-75. The essay by Bestor is particularly remarkable. It evidently caught Greenspoon's eye as well as mine, for he quoted from it in his *Hindsight* article.<sup>3</sup> Part of the quotation in Greenspoon's article includes the statement that "Optometry is not and never should become a branch of medicine..." In another part of the essay, Bestor noted that "...efforts are being made to include Optometry departments in established Universities and thus place the profession on an educational par with the other recognized professions. Ohio State University has, for several years, had a regular collegiate course in Optometry, and while a little ahead of the times, has through the foresight of our beloved Dr. Sheard, set a precedent and example for other Universities to follow. Columbia is planning to do the same and the University of California is considering the establishment of an Optometry Department." (p. 61)

Bestor noted that the educational requirements for optometry would continue to increase. He noted that to some "...an elevation of our educational standards to the full four-year collegiate, and eventually two-year pre-optometry, and four-year Optometry courses, seems professional suicide, but it has been done in Dentistry, and surely Optometry is as dignified and important a department of public health-welfare as Dentistry." There was concern that if the time to qualify in optometry was the same as for medicine, students might be attracted to ophthalmology rather than optometry. Bestor attempted to allay those fears by noting in part that "Optometry is not a medical science and those who might be attracted by it, would not be attracted by medicine, any more than students who enter law, ministry, dentistry, or the other professions." (p. 62)

The essay by Gliddon talked about the difficulties of describing color. He discussed the additive method of color mixing and the subtractive method of colors. He stated that an equation of three terms, using the three primary colors as a basis, was a theoretically logical way of describing color, but impractical. He mentioned that an artist named Munsell had attempted a method of classifying colors. The topic of the essay by Groat was the materials used by optometrists. He urged that the best quality lenses and frames be used. He also suggested that the opinion of the public of the optometrist is enhanced if the best quality examination equipment and furniture is used.

Most of the rest of the yearbook dealt with various activities at RSO – the football team, the basketball team, the track team, two fraternities, dances, banquets, field trips, the orchestra, and the newspaper (the RSO Focus, printed five or six times a year). Field trips were taken to the Shur-on Optical Company and the Bausch & Lomb plant in Rochester. Another field trip involved tours of the Standard Optical Company and the

United States Lens Company in Geneva, New York. On pages 129 to 137 there is a listing of the alumni of RSO.

Advertisements in the back of the yearbook were for various optical and ophthalmic equipment companies, as well as for some businesses in Rochester. One of the ads indicated that 52 issues of the *Optometric Weekly* could be obtained at a cost of \$1.00.

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# The Story Behind *Optometric Management* Magazine

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I was editor of the *Journal of the American Optometric Association* from 1956 to 1965. One of my last editorials in that publication dealt with the lack of “business” information available to optometrists. I conjectured about a magazine devoted essentially to business management.

The idea was not readily embraced by my colleagues or by my association or by my peers in the optometric press. Those were the days when talking about “optometric business”, “profit”, “selling”, and nearly anything connected with commerce was considered heresy.

Surprisingly, Mel Goldberg, then editor of the very successful dental magazine, *Dental Management (DM)*, read the editorial, and he decided to pursue the idea. In 1965 the first issue of *Optometric Management (OM)* appeared. It was “*Readers’ Digest*” size – six inches by eight inches. I had been asked to be one of a group of optometrists to serve on the “Consulting Board.”

The magazine was sent at no charge to all of the optometrists in the nation, members of the American Optometric Association (AOA) or not. The advertising rate was high for those times for an optometric magazine, nearly double what was being charged by the only three magazines that then served the profession: *The Journal of the AOA*, the *Optometric Weekly*, and the *Optical Journal and Review of Optometry*.

The magazine was an immediate big hit with optometrists – essentially because it was so very different from existing magazines. It contained articles written in a very readable, understandable style dealing with subjects likely to be taught in Business 101. There were a number of optometric authors – at least they carried names of optometrists as authors.

What I did not know then was that most of the articles that appeared in *OM* had already been published in *Dental Management*, with only the word “dental” changed to “optometric”. One of the features of *DM* was a column for dental assistants, called “Dear Juli.” Eventually that column became a mainstay in *OM* and it was renamed “Dear Judi.”

*OM* never enjoyed financial success in its first five years of existence. Advertisers balked at the higher ad charges. Advertisers objected to the extra charge required to provide camera-ready ads for *OM*'s smaller size. Being a caboose to *DM*, *OM* had no advertising director or sales reps. Small commissions were given to *DM* sales reps for whatever ads they could bring in for *OM* but the incentive was not there. The higher ad

rates, the extra cost of ad development, and the lack of a sales department all contributed to little or no profit for the publication.

The consensus was that easiest thing to change to make *OM* profitable was its size, so three years after the start of publication, the six by eight inch *Readers' Digest* styled magazine graduated into the more convention larger size, not quite the "A" *Time* magazine size of later years. Sad, but true, the size change failed to bring in more advertising.

Keep in mind the magazine was mailed monthly to all optometrists in the nation for no subscription fee. As an experiment about three years after publication, all of the OD recipients received a bill for \$10 to "renew" their *OM* magazine subscription. The response was great (although I never learned how great). No records were kept on who paid and who did not pay to subscribe.

In 1969, or thereabouts, the publisher of *Dental Management* – headed by a New York psychiatrist Dr. Joseph Waxburg – sold the dental magazine to very large book/magazine publisher Harcourt Brace Jovanovich. *Optometric Management* was part of the sales package.

It did not take long for the management of Harcourt to conclude that *OM* was a financial loser, particularly when you added in all of the hidden costs publishers add on to every publication. This includes a percentage (albeit small) of the President's salary, the overhead, whatever. Word soon went out to sell the publication.

Who would be the most logical purchasers of an optometric magazine? Probably the two competing non-Association publications. The *Optical Journal and Review of Optometry* gave an immediate and emphatic "not interested." Peter Topaz, son of the owner and publisher of the *Optometric Weekly* and *Optical Index*, did have an interest but his dad did not agree. Feeling that *OM* could not be sold and would, therefore, fold, Marty Topaz turned down the Harcourt offer.

Mel Goldberg, managing editor of both *OM* and *DM*, recognized that there was potential for an optometric business publication and called me with a proposition that was hard to refuse. Get together a group to buy the magazine and its valuable mailing list, he said, and he and his colleagues would do all the work needed to carry on.

Well, buying a magazine with no advertising department seemed to me to be but a continuation of the no-profit venture. Yet, I thought that it would be neat to have a national presence in journalism so I decided to pursue the matter.

Trude, my wife, was supportive to a point – I assured her that it would be a nice venture and if we controlled our expenditures, it would not be a major loss. I assured Trude that under no circumstances would we spend more than \$7,500 on the magazine.

The first challenge was to get two partners to join Mel Goldberg and me. Mel suggested Jay Gubitz, a talented graphic artist who had a one-room office at 52 West 42<sup>nd</sup> Street in New York City. I came up with Bob Phillips my longtime colleague in optometry, who I felt would be a good business manager.

To get going with the purchase, I agreed to meet Mel Goldberg at the Kennedy Airport in New York on January 1, 1970. The time and place were set to accommodate me – Trude and I were on our way to Japan, via Israel, and there was to be a three-hour lay over at Kennedy. I never imagined that that three-hour window would be consumed on the runway in Pittsburgh because of a major snowstorm.

When we got to Kennedy, three hours late, we rushed to the El Al terminal to catch our plane. We got to the terminal as the doors of the airplane were ready to close! Mel Goldberg, who has been impatiently waiting, was paging me over the loud speaker system. The El Al ticket counter person told me that if I responded to the page we would not be allowed on the aircraft. We left Mr. Goldberg hanging.

On the plane to Israel, I wrote Mel Goldberg telling him of the snafu with the airlines and weather and agreed to call him upon our return from Japan a month later. But I did not know where to send the letter! So, I addressed it to Goldberg as Editor, Dental Management, Stamford, CT. No street address. No zip code. I was unaware at that time that Stamford was a relatively large city – at least large when compared to my Beaver Falls city and its 15,000 residents.

You guessed it. On our return from Israel and Japan, the letter on top of the stack of mail waiting for me was my letter to Mel Goldberg – returned for lack of a complete address!

A telephone call to Mel set the matter straight. Harcourt had still not sold *OM* and had gone back to the *Optometric Weekly* and the *Optical Journal and REVIEW of Optometry* with a lower price. Still, no sale. Mel arranged for a meeting for me in New York City with the Board of Directors of Harcourt to negotiate the purchase.

To the “sophisticated” members of the Harcourt Board, all in their three-piece suits, I must have appeared like a country bumpkin. We talked a bit and I told the Board of my lack of journalistic or business experience but I liked the idea of the magazine. The price they said was \$10,000 for which I would get all the rights to the publication and the mailing list. There was no physical equipment; there were no financial records. What I was buying was the magazine’s name and mailing list!

“\$10,000,” I said, “is a lot of money.” I suggested \$5,000 as a down payment and two equal installments of \$2,500 for the next two years, no interest. The Board was delighted. And so was I. Had the Board insisted on the \$10,000 right then and there, I would have conceded. Mel Goldberg has told me that this was a “fire sale” – Harcourt considered my visit as the last effort. If I had refused to buy *OM*, the publication of the magazine would have ceased the next month.

After the meeting with Harcourt, I met with Mel Goldberg and Jay Gubitz in Gubitz's office. This was my first meeting with Jay and I was impressed with some of his work and his assurances that he could handle the production of the magazine.

We needed a name for our new company. Even then we thought future and we thought big, real big. Jay was our name person and he suggested "Advisory Enterprises" – we all liked it and approved.

We agreed at this initial meeting that the four partners would provide \$2,600 each for the magazine. We agreed to issue shares at \$100 a share. We never ever contributed more to the enterprise.

We did need a lawyer to draw up the legal papers and paid him with ten shares of stock. He had been Jay's lawyer. We did need an accountant and agreed to get Stan Scheslinger, Mel's boyhood friend, to do this work at a reasonable rate if he bought ten shares of stock. He did. And we needed a good writer so we employed Betty Lee Kuhn, the author of "Dear Juli" in *DM*, to sign on for a year or so for ten shares of stock.

Mel thought it would be a good idea to get as many ODs to "buy" a piece of our new company for \$1,000, ten shares of stock. Fortunately, the couple of friends that I asked to do this turned me down. I say "fortunately" because what little money we could raise by this would not have been needed and would only complicate the profit of the new company.

The first thing we did was to write letter to all *OM* advertisers; to all the companies we knew that supplied the ophthalmic industry; to all ODs who got the magazine, and to the editors of the other optometric magazines. We told each that *OM* was now in optometric hands and that we would supply a needed "whiff of optometry" to its pages. We asked their indulgence

There was no response from advertisers or potential advertisers. There were a few congratulatory letters from colleagues around the nation. There was a nice letter from John McCarthy, editor of the *Optical Journal* welcoming us to the field of optometric journalism. And from Marty Topaz, publisher of the *Optometric Weekly*, there was only a one-sentence letter – "Who are your partners?" [I politely replied.]

Probably the biggest single stimulus to our success was a statement made openly at the Pennsylvania Optometric Association convention that May by Mr. Topaz and the editor of the *Optometric Weekly*, Roy Stealey, which in effect said, "I hope Irv Bennett goes broke on his new magazine."

It was a rocky road for the publication – attracting advertisers was not very easy. And we needed money to promote.

*OM* was mailed under a controlled circulation permit. This provides a very low postal rate and we had continued to send the magazine to every OD in the country at no charge. We then decided to bill the recipients, a modest \$6 for a "renewal." Our mailing list had about 15,000 or so names and addresses and in a few weeks after mailing our bills, we had \$40,000 in the bank from renewal fees. [We continued to send the magazine to all ODs, those who paid and those who did not.] Six months later, we mailed another "renewal notice" to those who had not responded the first time around and raised another \$10,000. That was all we needed!

By the third or fourth issue, our advertising rates were covering our direct costs.

The rest is history. Within a year, we added a magazine for opticians (*Optical Management*), then a magazine for contact lens practitioners (*Contact Lens Forum*), another for para-optometric personnel (*EyeTalk*), and subsequently one for ophthalmologists (*Ophthalmology Management*).

We started OptiFair in 1978, a conference/exhibition for all members of the ophthalmic field that soon became the largest eyecare conference in the USA. OptiFair was an immediate success, with nearly 7,000 eyecare professionals attending the first conference in New York City. The same year we started OptiFair West and the following year we added OptiFair Midwest.

We also introduced annual international educational conferences and a series of domestic seminars, all featuring management topics. Our annual Practice Management Seminar in Las Vegas was a staple for at least one hundred ODs.

What made this little company thrive so well in such a relatively short period of time? As some of the principals looked back, as in later years they often did, they came up with some answers:

- We had our fingers on the pulse of our readers and our profession
- We changed the publication to the "A" (*Time Magazine*) size
- Our insistence on printing full-color ads rather than asking our advertisers to supply inserts which were actually more expensive to the advertisers
- We cleansed our mailing lists regularly and maintained one of the cleanest lists in the field
- We updated our mailing lists annually with all the new graduates
- We encouraged our advertisers to rent our lists
- We had professionals edit and copy-edit manuscripts which resulted in well-written, well-edited editorial content
- We employed key advertising people, headed by Larry Henry, who we attracted from the *Journal of the AOA*, and found a diamond in the rough
- And, lastly, the owners were the key employees, something unusual in most companies.

In the summer of 1978, I received a telephone call from Robert Mueller, still president of Harcourt Brace Jovanovich. Mr. Mueller wanted to meet with me and flew into the Pittsburgh International Airport from Minneapolis to do so. Over lunch, Mr. Mueller asked about buying back the magazine and offered well over one hundred times the sale price.

"But Mr. Mueller," I said, "the property is worth much more than that!" He countered, "Dr. Bennett, I know what we sold it to you for."

"Yes, I know you do," I said, "but that's your problem."

## **Book Review:**

# **The Last Man Who Knew Everything: Thomas Young, The Anonymous Polymath Who Proved Newton Wrong, Explained How We See, Cured the Sick, and Deciphered the Rosetta Stone, Among Other Feats of Genius**

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Reading the title and subtitle of this book, one quickly gets the notion that a major theme of the book will be Thomas Young's polymathy. And, in fact, it is. In the preface, the author, who has published four previous biographies, notes that he has always been fascinated by versatile people. He observes that "...Thomas Young (1773-1829), for sheer range of expertise, beats them all. Not only did he make pioneering contributions to physics (the wave theory of light) and engineering (the modulus of elasticity), to physiology (the mechanism of vision) and to Egyptology (the decipherment of hieroglyphics), but he was also a distinguished physician, a major scholar of ancient Greek, a phenomenal linguist, and an authoritative writer on all manner of other subjects, from carpentry and music to life insurance and ocean tides." (p. ix)

This book discusses aspects of Young's life from his childhood (chapter 1, pp. 15-31, is entitled "Child Prodigy") to his later years and death. His contributions to optics and vision, including the wave theory of light, discovery of astigmatism, explanation of the accommodative mechanism, and the trichromatic theory of color vision are discussed primarily in chapters 2 (Fellow of the Royal Society, pp. 33-40), 5 (Physician of Vision, pp. 67-83), and 7 (Let There be Light Waves, pp. 95-112). Because the author thought it would be difficult to write comprehensively about Young's myriad contributions, he "...decided it would be better to write an introduction to Young for a new audience, rather than attempting a full biography. To cover his work in life in detail and with authority is probably impossible for a single writer. This book therefore dwells only on the highlights of his polymathic career, though it aims to touch on every interesting and enduring aspect of Young." (pp. ix-x)

The author, Andrew Robinson, is a King's Scholar of Eton College, and has written more than a dozen books. There have been two longer biographies of Thomas Young, one published by George Peacock in 1855, and another by Alex Wood in 1954. I have not read the two previous biographies, so I cannot make a comparison. However, Robinson says that while Peacock and Wood provided much useful information, they failed "to tell a story." Robinson also mentions that he stressed Young's work as a physician more than Peacock and Wood.

Young achieved notoriety in scientific circles before completing medical studies. He was made a Fellow of the Royal Society at age 21. He was trained in medicine from 1792 to 1796, in London, Edinburgh, and Göttingen. He had the Cambridge Bachelor of

Medicine (M.B.), M.D., and Fellow of the Royal College of Physicians (F.R.C.P.) conferred upon him in 1803, 1808, and 1809, respectively.

In 1802 and 1803, Young gave a course of lectures at the Royal Institution in London which Robinson described as "covering virtually all of known science, which has never been surpassed in scope and boldness of insight." (p. 3) Between 1816 and 1825, Young wrote 63 articles for *Encyclopedia Britannica*, including 46 biographical sketches. Topics of these articles included carpentry, chromatics, cohesion, double refraction, Egypt, fluents (integrals), Herculaneum, languages, road-making, steam engines, tides, and weights and measures. Many of these contributions were made anonymously because Young feared that public knowledge of his many scientific interests could lead to the impression that he wasn't as committed to his medical practice as he should be. Young held various consulting positions at different times in his life, such as inspector of calculations and physician for the Palladium Life Insurance Company, advisor to the British Admiralty on shipbuilding methods, Board of Longitude secretary, and Nautical Almanac superintendent.

Young was disappointed that he wasn't more successful in his medical practice than he was. Robinson suggests that his relative lack of success may have been due to Young's "reputation for being a cold man of science." (p. 133) Young published two books on medicine, "An Introduction to Medical Literature" (1813 and a second edition in 1823) and "A Practical and Historical Treatise on Consumptive Diseases" (1815).

Young was largely self-taught in science, having achieved much of his knowledge from his own readings. His viewpoint on this matter is shown in a 1798 letter to his brother: "Although I have readily fallen in with the idea of assisting you in your learning, yet [there] is in reality very little that a person who is seriously and industriously disposed to improve may not obtain from books with more advantage than from a living instructor... Masters and mistresses are very necessary to compensate for want of inclination and exertion: but whoever would arrive at excellence must be self-taught." (p. 15) Later, in 1809, he wrote the following to his friend Hudson Gurney: "The longer a person has lived the less he gains by reading, and the more likely he is to forget what he has read and learnt of old; and the only remedy that I know of is to write upon every subject that he wishes to understand, even if he burns what he has written." (p. 179)

In today's day of specialization and narrow focus, scholars with a wide range of interests are often viewed askance, perhaps as odd or uncommitted. And some may think it impossible for someone to be successful in more than one area. Robinson suggests that Young's reputation among his contemporaries may have also suffered from comparable attitudes. The author portrays Thomas Young as modest but driven by curiosity. Young is presented as charming at times and loyal to friends, but as a person who "did not by nature easily open himself to others." (p. 61) I found Robinson's telling of the life and work of Thomas Young to be interesting and enjoyable reading. It should give readers insight into Young's personality and scholarly pursuits. The book includes 23 pages of reference notes, a seven-page bibliography, and an index.

## 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 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 and 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  $\Delta$  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 at the end of the article. 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 Indian 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 this periodical should be given as follows:

Bennett I. The story behind *Optometric Management* magazine. *Hindsight: J Optom Hist* 2007;38:17-22.

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 lifetime membership, \$250

Name \_\_\_\_\_

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