HINDSIGHT

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

Volume 30 **January 1999** **Number 1**

1999 OHS Board members and officers:

Listed below are the 1999 OHS Executive Board members and officers, and the year of each member's term of expiration.

President	Walter Chase (2002)
Vice President	Chuck Haine (2000)
Secretary-Treasurer	Bridget Kowalczyk (2000)
Trustees	Jack Bennett (2002)
	Patricia Carlson (1999)
	Theodore Grosvenor (2001)
	Alfred Rosenbloom (2001)

Call for nominations:

It is time for you to send in your nominations for the one position on the OHS Executive Board which will expire at the end of this year. The member whose term will expire is Patricia Carlson. She has retired from Southern California College of Optometry and does not wish to be considered for another term of service on the OHS Board. The 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 a copy of *Hindsight*. Please send nominations to the OHS Secretary-Treasurer by March 15, 1999: Bridget Kowalczyk, ILAMO, 243 N. Lindbergh Blvd., St. Louis, MO 63141 USA.

Talk by Joe Bruneni on Prentice:

At the Optometric Historical Society meeting on Saturday, December 12, 1998, at the American Academy of Optometry meetings in San Francisco, California, Joe Bruneni gave a talk on Charles Prentice. The text of his talk follows.

Charles F. Prentice, Opticist

The name "Prentice" is an important term in ophthalmic optics. Optometric and opticianry students spend hours learning "Prentice's Rule," a law of optics first defined by Charles Prentice. The rule he formulated is important to everyone involved with "ophthalmic lenses" (a term Prentice coined).

Anyone who has ever decentered a stock lens to create prism or tried to calculate the amount of prism created by an incorrect P.D. uses Prentice's Rule to do so.

Charles Prentice, however, enjoys another distinction. His strong feelings and direct actions paved the way for what became the third largest independent profession in the U.S. It's a fascinating story that's not as well known as it should be.

Charles was born in Brooklyn, New York, in 1854. His father James was a well-known optician who had moved his dispensing business from London, England, to New York City in 1842. James could see that future opticians would need a thorough education but there were no optician's schools in this country. He chose to send his son Charles to study mechanical engineering at the Royal Polytechnikum in Karlsruhe, Germany. Returning to New York in 1882, Charles joined the family firm which, by now, had become a lucrative retail optical business. Taking over when his father died in 1888, Charles gradually transformed his father's commercial store into a more professional establishment. In the meantime, he had been publishing original articles in leading ophthalmic journals in this country and Europe and, over a period of time, had gained recognition among ophthalmologists of international fame such as Helmholtz, Knapp, and Noyes.

In a paper published in 1886, Prentice applied the term "ophthalmic lenses" to lenses used for spectacles, the first time this term was ever used. In 1890, he published "A Metric System of Numbering and Measuring Prisms" in which he proposed a measurement he called "prism diopter." The famous "Prentice's Rule" described the law of decentration, a basic rule of optics that is as important today as it was when he formulated it. Shortly after publication, American Optical switched over to prism diopters and before long every manufacturer in the world did the same. Although still an optician, Prentice had a solid scientific background and his prism diopter system had been recognized by leading ophthalmologists around the world. He was a proud man and believed his knowledge qualified him to test his customers' vision and this is what eventually got him into trouble. By the 1890s, opticians had drifted into two camps—those who refracted and those who did not.

Two noted New York physicians played important roles in this story. The first was Henry D. Noyes, A.M., M.D., author of a well-known textbook titled "Diseases of the Eye." Dr. Noyes was a founder of the American Ophthalmological Society and a Professor in the Bellevue Hospital Medical College. He served on the staff of New York Eye and Ear Infirmary. Although a nervous and abrupt type, Dr. Noyes was highly respected and widely regarded as an organizing genius.

The other player in this drama was D.B. St. John Roosa, A.M., LL.D., M.D. Dr. Roosa was a celebrated ophthalmologist who founded both the Manhattan Eye and Ear Hospital and the Brooklyn Eye and Ear Hospital. He had studied ophthalmology and otology in Berlin and Vienna. He was a professor of ophthalmology and otology at the University of New York. He had become a man of strong opinions who disliked being crossed. He even described himself as somewhat "sot in his ways." He did not believe in correcting weaker refractive errors for his patients. He was positive in every opinion and exceedingly ornery when contradicted.

Here we have two highly distinguished medical eye specialists and an exceptionally qualified optician who had become a world authority on laws of optics. One would hope they would each respect the other, but the three men were doomed to clash in a very spectacular manner. One day a lady named Anderson visited Mr. Prentice. He refracted her and provided a pair of glasses. Noting some inflammation in one eye, he referred her to Dr. Noyes. On December 16th, 1892, Prentice received a letter from Dr. Noyes in which Noyes stated that Mrs. Anderson, because of the inflammation, needed medical treatment, not glasses.

In his letter, Dr. Noyes added, "I know that you make examinations for fitting glasses as do many other opticians . . . . For your work in making [glasses] you have your compensation. I know of an instance in which you are said to have charged a fee for the examination as a separate item." Dr. Noyes seemed to consider this a grievous sin.

Dr. Noyes went on to state that he had warned Prentice before about charging for an eye examination. Dr. Noyes stated, "You place yourself in direct competition with reputable oculists without having their training and general education. I consider an injustice is done the public by the fact that in charging a fee you assume that you have the qualifications which entitle you to a fee for advice. To this I strenuously object."

The very next day (the U.S. mail was evidently faster then), Prentice answered Dr. Noyes' letter. He pointed out his extensive European training, the technical papers he had published, all of which, he wrote, had been to help secure referral work from the oculists. Such referrals, for the most part, never happened. In effect, Prentice told Dr. Noyes his training qualified him and lack of support from the medical community forced him to conduct eye examinations.

Two weeks later Noyes wrote back and mentioned he had shown Prentice's letter to Roosa. Noyes stated that Prentice's lack of referrals was because he was located "downtown." He enclosed a letter from Dr. Roosa in which Roosa insisted that "by charging a fee, he (Prentice) was violating the law relative to the practice of medicine."

Prentice was incensed that Noyes had shown his letter to Roosa and told him so in a letter. He asked for an apology and enclosed an opinion from his lawyer that charging a fee for an eye exam did not constitute the practice of medicine. Dr. Noyes responded by letter, again urging Prentice to stop charging for eye exams and telling him a lawyer's opinion didn't impress him at all. He ended by repeating again that he was acting in friendship. A flurry of letters continued, involving a few other ophthalmologists who were solidly in Prentice's corner.

Things continued in this vein until February 1895 when one of Prentice's friendly ophthalmologists informed him that Roosa had appealed to the New York County Medical Society to eject any members who sent patients to opticians to have glasses fitted. Things were heating up and this played right into the hands of an enterprising editor of the optical trade's only magazine. The editor's name was Frederic Boger and, in 1885, he had founded a publication called *The Journal*. It contained material of interest to jewelers and opticians (often the same person). He renamed the magazine *The Optical Journal* in 1891. Subscriptions cost $1 per year and were payable in advance. (Today we know *The Optical Journal* as *Review of Optometry*.)

Boger had been closely following the Prentice/Roosa affair. He began urging his readers to form a National Association of Opticians. Prentice, however, was not in favor of a national organization. He believed each state should organize first. Boger held a planning meeting in his office on September 13th, 1895. Prentice and eight other opticians were present. Prentice was more interested in legislation than forming an association. An attorney was retained and, quietly, solicitation for support from New York opticians was sought. The group then decided they needed a few opinions from ophthalmologists. Their choices to interview seem strange today. When they called on Dr. Noyes, he refused to be interviewed. Dr. St. John Roosa would have probably refused an interview, but got confused and thought the visitor was a patient. When he found out the purpose of the visit, he exploded. "I know who is at the bottom of this—that man Prentice. He is foxy and I'm only waiting for the opportunity to put him behind prison bars. I shall fight you in Albany to the last ditch." Roosa vowed he would have the Medical Practice Act amended to prevent "men of Prentice's cult from meddling with ophthalmology!"

When this was reported at the next optician's meeting, the dispensing (non-refracting) opticians got up as a group and walked out. They were dependent on referrals from ophthalmologists and the situation was getting too hairy for them. A.J. Cross and most of the other refracting opticians were in favor of increasing education for opticians and increasing membership, leaving the battle with ophthalmology to be fought at a later date. Prentice stood up and said, "That is like building a house on ground you do not own. In fact, we are momentarily in danger of being evicted. Oculists don't care how much education we have. They seriously object to our being allowed to use it. In my opinion we must strike now." That statement effectively determined the future of optometry in the United States.

The group formed the Optical Society of New York with Charles F. Prentice as President. One week later, a bill was introduced in the New York Assembly. The interesting thing about that bill was that it required ophthalmologists to pass the same test of refracting abilities as optometrists, the name refracting opticians eventually adopted. The bill came within three votes of passage. Had it passed, the relationship between optometry and ophthalmology would be far different than it is today. New York would not have an optometric law until 1908.

An organizing meeting was held in 1897 at the Planters Hotel in St. Louis where the decision to form a national group was confirmed. In 1997, the American Optometric Association celebrated its 100th anniversary of that first convention, again meeting in St. Louis.

Following the St. Louis meeting, Frederick Boger continued his efforts to drum up membership for the new group. With the help of Andrew J. Cross and Charles F. Prentice, plans were laid for the first national convention for this new association. On October 10, 1898, they met at the famous Broadway Central Hotel in New York City. One hundred and eighty-three members attended, representing 31 states and three Canadian provinces. It was a rather hodgepodge group, being purveyors of "optical, philosophical, and photographic goods." They decided to call their new association "The American Optical Association." Some of the members refracted and some did not.

Initially, "dispensing opticians" controlled the group, largely because the first president was a New York nonrefracting optician named Charles Lembke. However, he was succeeded in 1900 by Andrew Jay Cross, a prominent New York refracting optician who would come to be known as "the father of optometry." Eventually, the group would become exclusively optometric.

Roosa had been apoplectic over the idea of nonmedical persons charging the public for eye exams. His frantic efforts to stamp out refracting opticians actually provided the stimulus that helped create the new profession of optometry. Mr. Prentice, who lived a busy and productive life until 1946, never claimed the title of doctor. As late as 1900, he was still calling himself "opticist," the term he much preferred over "optometrist."

Part II—Continuing the story of Charles Prentice and his times

Refracting opticians had a great deal of difficulty in deciding what to call themselves. By 1904, many were calling themselves "optometrist" (meaning "one skilled in the practice of physiological optics"), a term proposed by John Eberhardt. Other suggested names included "optician," "sight-testing optician," and "opticist." The last name was the name coined by Charles Prentice, backed by the prestige of the internationally recognized prism dioptry system he had formulated. All these names were used interchangeably until 1919 when "optometry" and "optometrist" became the officially adopted names for the new profession. The fact that many ophthalmological publications and texts on refraction used the term "optometry" when referring to refraction added credence to that name. In 1904, at the organization's meeting in Milwaukee, the members adopted the name "optometrists." It's interesting to

note that three years before in 1901, Minnesota passed the first optometry law, using the word "optometrist."

Their association was founded under the name "American Association of Opticians and operated under that name until the 13th convention in 1910 when the name was changed to "American Optical Association." However, it wasn't until 1918 that the association changed its name to "American Optometric Association." In some states it was necessary to amend the laws to ensure the word "optometrist" was used on business cards, stationery, etc. The honorific title of "Doctor" was seldom used before 1922.

The association was not necessarily the arbiter of optical matters since only a small percentage of retailers were members and some of these were disaffected with the early results attained by the association. During a convention of the new association in Atlantic City, New Jersey, in 1904, a to-the-point question was addressed to the chair, "What do I get for my $1 annual dues? We think we are being gypped."

Education

Meanwhile, as fighting over a name continued, advances were being made in the field of education. Optical correspondence courses had become popular, springing up all over the country. Once tuition was paid and the few lessons completed, students received a diploma giving them the right to practice and, in many cases, the use of the title "Doctor." Dr. Brown established his Philadelphia Optical College in 1892, and a Mr. Thomson started the South Bend College of Optics in Indiana. In 1894, the largest of these schools was started in Chicago by brothers J.B. and George McFatrich. They called their school the Northern Illinois College of Ophthalmology and Otology, which was shortened to Northern Illinois College of Optometry in 1925. During the school's first 20 years, more than 7,000 graduated. In addition to a successful correspondence course, the school gave lectures. Courses lasted one to six weeks, at a cost of $25 a course.

Around 1898 or 1900, the McCormick Neurological School, later the McCormick Medical School, was giving courses. In 1900, C.L. Merry started a school in his building in Kansas City to provide his growing laboratory with new customers. Named the Southwestern Optical College, it was later turned over to Dr. E.A. Lane to operate. A jeweler could take a few lessons, buy a trial case, receive a prescription order book, and be ready to practice. This school became so profitable that competition sprang up. Merry withdrew his support of Dr. Lane and encouraged Dr. William B. Needles, a young man who had just finished a course at the McCormick Optical College, to start a new school in Kansas City. The year was 1909 and the Needles Institute of Optometry flourished in the years to come.

Educational standards gradually improved as the practice of optometry was legalized in every state. Practitioners had to fulfill certain requirements in order to be licensed. It took 23 years to get an optometric law in every state. By 1924 when Calvin Coolidge put his signature to the last law (District of Columbia), 20,000 optometrists were registered throughout the country.

One of the more gratifying developments in the field of optometric education was the initiation of optometry courses by several large universities. In 1910, Columbia University added optometry to its curriculum; Ohio State University followed in 1914 and California in 1923 when optometrists of that state underwrote the course. A yearly registration fee of $10 for optometrists was established, $8 of which went to the university as an income for the optometry course. The University of Rochester also conducted an optometry course for a while.

State licensing

The American Optometric Association (AOA) promoted the concept of professionalism for its members and urged state laws demanding high qualifications for optometry. Prospective optometrists, under the new rules, had to be approved by local boards. Those who were already refracting were exempt from taking board examinations under a "grandfather clause." It would take a while for optometry to come out of the "dark ages." Current thinking was, "How could an optometrist charge for a refraction when the oculist received only $5 for a medical refraction?" As it turned out, for many years optometrists who charged for eye examinations defied the medical field which was strongly opposed to nonmedical men charging for what they perceived to be professional medical services.

Yearly conventions held by the AOA helped firm up its concepts. An idea of the interest in group actions by American optometrists can be deduced by the attendance figures of the national conventions. In 1898, the first convention in New York City attracted 32; in 1899, 175 attended the second convention in Rochester; in Detroit, in 1900, there were 300; in 1906, in Rochester, New York, 1,000 were in attendance with this figure climbing to 1,071 in Providence, Rhode Island, in 1916.

Interprofessional Competition

Optometry chose many ways to fight the fierce attempts by medical refractionists to eliminate its profession, including use of a rather obvious slogan no one could deny, "A lens is not a pill." In 1914, the medical profession in Pennsylvania was able to pass a law which stated that optometry was a "minor branch" of medicine that should be supervised by the Medical Examining Board. Optometry successfully fought this law through the courts who, on appeal, reversed the law. The court agreed that optometry and medicine overlapped but decided optometry required a proper academic, educational background as well as competence in refracting—that its experience in refractive techniques often predated medical participation in this area. The conclusion was that optometry belonged to the world of science, rather than the profession of medicine, and was a function of physics.

New York State had problems as well. The title of "Doctor" was not officially authorized until the late 1950s (although it was in common usage). The New York State Optometric Association had its origins years before when a group of New York City and upstate opticians formed the Optical Society of the State of New York. Founding members included Prentice (the first President), Cross (Treasurer), Boger (Secretary), and George B. Bausch, J.J. Bausch's brother (Vice-President). Friction arose between Prentice and Cross. Charles Prentice, a partner with his famous optician father, James, used knowledge gained in studies in Europe and with various leading American optical and scientific firms in 1874 to develop impressive new instruments and theories.

Andrew Jay Cross trained as a watchmaker while living in Visalia, California, and Walla Walla in the soon-to-be state of Washington. After traveling as a watch repairer, he became interested in optics, training with a Philadelphia optical firm. He opened an upstairs practice in New York City in 1894, later moving downstairs but still maintaining a professional atmosphere. Cross developed many instruments but was mainly known for discovering the principles of dynamic skiametry.

Defending Opticianry

The ensuing conflict involved medical opinion on both sides and continued in the New York state legislature. It was fiercely debated until, finally, the New York Optometric Law was enacted in 1908. In the course of this legislative fight, Prentice introduced his famous "Defense of the Optician." In this treatise, Prentice stated that medical doctors had little interest in eye refractions until the publication in

1864 of Donders' "Accommodation and Refraction of the Eye," and that oculists did not have full sets of trial lenses until the 1880s. Opticians had carried out most eye refractions and Chamblant of Paris had prescribed for astigmatism in 1849 with McAllister of Philadelphia doing so in 1854.

Prentice emphasized the work of opticians through the years, enumerating their developments and inventions, and accused medical men of becoming fascinated with "physico-mechanical jobs" because of the fees that could be charged. Prentice, however, abstained from most of the legislative fight, except for continually circularizing legislators with his treatise. He had been replaced by Cross as president of the New York State Society in 1897. Prentice had a goal to also establish regulation of New York state dispensing opticians but legislation accomplishing this would not pass until 1946.

In 1929, there were legal skirmishes in Pennsylvania on the basis that optometry was part of medicine just as dentistry had been until its breakaway. Optometry stressed that it was an "optical science" and had never been part of medicine. Optometrists stated that they "refracted better without drugs than oculists could with drugs." Oculists argued that proper refractions could only be done with dilating drugs, such as atropine, which only medical doctors were permitted to use.

The American Plan

Many have forgotten the impact the American Plan had on early optometry. This program had been developed by American Optical (AO) during its heyday. This was not entirely an unselfish plan as AO had problems in many branches maintaining sales to optometrists since AO's prices were higher than those of many independent labs. Optometrists, many struggling to make a living (the median income for optometry in 1945 was $2,500/year—in 1990 it was over $50,000), were eager to take advantage of lower priced independent labs, many of whom used lenses made by companies other than AO or B&L.

So, AO put on a "dog & pony show" to promote professional optometry and the "American Plan." Optometrists were told to remember they were professional men. They were urged to move to upstairs professional offices, severely restrict their advertising, and charge a "fee for service." AO pointed out that if oculists could charge $5 for an examination, the optometrist could charge at least $2.

AO further suggested that "materials" and "therapeutic devices" (i.e., lenses and frames—possibly the first reference to these products as "materials") be included in their total fee—based on double their cost. Obviously, an AO lab's high price would command a higher fee when doubled—few took the time to figure out they could charge that higher price even if they bought lower cost "materials" from independents.

The plan worked—to a degree. Many optometrists who moved upstairs proceeded to starve to death economically, cut off from both street traffic and advertising. They donned white coats and started charging fees for all services and materials. They were aided, however, by the advent of World War II when everything was in short supply and the public had more money to spend than ever before. Those "upstairs" professional optometrists pioneered today's professional optometry.

Optical physicists on bank notes:

The December, 1998, issue of *Physics Today* features an article entitled "Fiscal Physicists" (volume 51, number 12, pages 38-40), in which Lloyd Kannenberg writes about physicists who have had their portraits on bank notes in various countries. Some of those he listed are persons noted for their contributions to optics and vision. For example, the ancient Greek philosopher Democritus, who had a theory of vision, was on the 20 and 100 drachma notes issued in Greece in 1955 and 1967. René Descartes was on the French 100 franc noted issued from 1942 to 1944. Carl Friedrich Gauss was portrayed on the 10 mark note issued in Germany in 1989 and 1991. Christiaan Huygens was on the 25 gulden note from The Netherlands (1955). Isaac Newton's portrait was on the 1 pound note in the United Kingdom (1978 to 1982). Ole Rømer, the Danish physicist, astronomer, and statesman who studied the speed of light, was represented on 50 kroner notes issued in Denmark from 1950 to 1970. Kannenberg also includes in his list the American bills on which Benjamin Franklin has appeared ($50, 1874; $10, 1879; $100, 1929 and 1996 to the present).

D.A.G.

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