HINDSIGHT

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Comparison of educational models:

The following paper was prepared by Henry Hofstetter as background material for the conferees of the Second World Conference on Optometric Education, April 5-7, 1993, in Hong Kong and distributed in the conferees' notebooks but never otherwise published. Because of its historical significance, it seems appropriate to reproduce it in *Hindsight*.

Comparison of Optometric Educational Models

Henry W Hofstetter

It helps to understand the evolvement of our educational models by reminding ourselves that the earliest formalized training of optometrists was under the guidance, if not fairly firm control, of vocationally oriented guilds. Their members were variously identified as spectaclemakers, opticians, or equivalent titles in different languages and, because of their paucity in many communities, were often joined in guildship with other crafts to attain recognition, charters, and governing strength. This led to optometric education's emergence from a crafts philosophy rather than from the more academic philosophy enjoyed by the so-called "learned professions" of theology, law, and medicine.

There then emerged what I perceive as three somewhat different current patterns of training in different parts of the globe. These three patterns are not sharply distinguishable but are sufficiently categorical to lend themselves to convenient comparison. For convenience of labeling these three I would call one the "English" pattern; another, the "Continental" or "European" pattern; and the third, the "Eastern" or "Oriental" pattern. In doing so I am apologetically mindful that gross geographic exceptions are apparent, but that these labels are convenient verbal "handles."

The English pattern of education is found primarily in the parts of the world in which English is the home language and which were culturally influenced under the former British Empire. Several specific circumstances influenced its evolvement. Perhaps earliest was a guild in England, the Worshipful Company of Spectacle Makers chartered in 1629, with substantial governing powers. It adopted rather formalized training requirements, the technical aspects of which were eventually farmed out to polytechnical vocational schools. Some of these schools later became technical institutes and finally emerged as government-authorized universities with all the trappings of degree granting institutions, and with optometry included.

Another specific influence, indeed impact, on optometry of the English-speaking world was the Markham v. Wood, Abrahams court case[1] in Manchester, England, a malpractice suit which was tried in 1910 and retried in 1911. Over the organized opposition of the ophthalmic opticians (optometrists)

[1]Described in a series of reports in the Oct. 28, 1910, and Mar. 17 & 24, 1911, issues of *The Optician and Photographic Trade Journal*, Nos. 1022, 1041, & 1042.

of the time, the jury decided that the optometrist had a responsibility to detect and refer ocular pathology. This, of course, quickly put pathology detection firmly into every English language optometry curriculum.

In what had been the far-flung rural-dominated colonies of the British Empire, such as in North America, Australia, and New Zealand, the guilds were nonexistent, but degree-granting charters were rather easily obtained by local education promoters. These included numerous privately chartered optometry schools, most of which were eventually discredited or otherwise discontinued. Some, however, were merged or taken over by well established universities or they eventually acquired nominal university equivalence status through a complex accreditation program that served the similar needs of several professions.

The Continental or European patter is best exemplified in the German-speaking countries, though also quite prevalent in surrounding European countries. In the absence of any legal requirement to detect pathology, the earlier guild pattern easily came under the supervision of the highly organized handicraft ministries which assigned the training to vocational schools with the more technical crafts. With the later advent of legislated health care payment provisions and the requirement of medical authorization of lens prescriptions for reimbursement, the pronounced reduction of optometric refractions tended temporarily to reinforce optometry's technical rather than clinical role as a craft.

The Eastern or Oriental pattern of optometric education is probably the most inadequately identified or labeled. Essentially it has been dominated by the eyewear manufacturing industry. The pattern, sometimes in quite formally established programs of a year or two duration and in other instances on-the-job training at company headquarters, is influenced by the objective to produce qualified refractionists to implement the companies' eyewear sales.

The technical optical core of the typical curriculum in each of the three broad patterns is usually much the same, reflecting significant portions of the minimum syllabus of the International Optometric and Optical League. The quality of teaching in each can range form good to poor, depending on a variety of personnel and economic, political, and other local circumstances. We must remind ourselves, too, that there are mixed patterns, that the above-described three are for analysis purposes only. From these we can say with some confidence that the English pattern tends to generate university-type training, the Continental or European pattern favors the craft mode, and the Eastern or Oriental pattern accommodates the aims of the industry. How, then, do they differ?

University education differs form other categories of higher education in two major respects. One is its assumption of responsibility and support for research to advance the knowledge of given fields or of society in general. Every faculty member is expected to engage in research and to publish findings. Secondly, the students are expected to engage as well in culturally broadening subjects and activities, to prepare themselves for social, technological, and civic roles beyond competence in one's chosen career.

The technical, vocational, or purely professional school on the other hand is dedicated primarily to teaching and applying the known science and technology of the day. The faculty members are judged quite exclusively on their teaching skills, and the students are judged quite solely on their performance skills. Supplementary training through apprenticeships with established practitioners is typically required.

The nature of company-owned programs is self-evident, depending largely on the philosophy, reputation, and dedication of the firms involved. They may vary from emphasis on salesmanship on the one hand to involvement in product development and technology improvement on the other.

With these rather simple, if not overly simple, criteria one can quite easily and quite reliably categorize almost any of the existing educational programs into university-type, vocational-type, or industrial-type institutions, or even as an intermediate type, by careful observation and interviewing of the administrative personnel, faculty, students, and graduates.

It should be kept in mind that such categorization itself is not a quality judgment, for each type can best fulfill the role of optometric education in certain circumstances.

Marquez's contribution to optics:

During the departure of banquet guests at the December 1992 meetings of the American Academy of Optometry, Dr. Ana M. Rueda of Madrid, Spain, introduced herself to me and hastily gave me a Spanish paperback book entitled *Lecciones de Refraccion Ocular* by Professor Manuel Marquez. Inserted was a slip of paper which I had momentarily presumed might explain her intentions but it included only her name and address, which enabled me to write a note of thanks.

My Spanish being limited quite entirely to highway signs, loan words, and resemblances to English, I am unable to do justice to the gift, but because it has historical significance I shall describe it, however cursorily.

It is an edition of 1,900 copies, of which this is number 1,695. It has over 200 pages of text which include 390 figures, almost all line drawings. On the front cover is a green-tone reproduction of an early etching, perhaps 16th century, of the open front of an optician's shop with spectacle trays. In the picture is a cleric-like customer trying different spectacles while consulting with the optician calipering lenses at his worktable. On the back outside cover of the book is a symbolic emblem of the refracting optician's craft apparently adapted from Daça de Valdes' 1623 optometry book, though not so credited.

On an unnumbered page is an autographed portrait of Dr. Manuel Marquez Rodriguez (14 March 1872 to 12 June 1961) followed by three unnumbered pages of biography authored by Dr. Narciso Pascual Jover, Secretary General of the Marquez Foundation, and dated 1981. From this we learn that Marquez studied medicine early in life, advanced rapidly to a professorship in medicine, and soon specialized in ophthalmology. In 1926 he edited a series entitled *Lecciones de Oftalmologia Clinica*, numbers 13 to 21 of which are the text of this book. Later he spent 18 years in Mexico during which time he participated in numerous Pan-American congresses. In 1957 the Fundacion Cientifica Dr. Marquez was established in his honor.

A three-page prologue by Professor Julian Garcia Sanchez follows next as a commentary on Marquez's theories of refraction and an explanation of the involvement of the Spanish Society of Ophthalmology at its 57th National Congress. The publication of the book was funded by Essilor Espana.

The nine chapters or "lecciones" are numbered from 13 to 21 and deal successively with the optical properties of the normal eye and presbyopia, spherical ametropia, astigmatic ametropia, subjective refractive procedures, objective refractive procedures, objective ophthalmoscopy (skiascopy), ophthalmometry, cylinder combinations, and clinical practice of refraction and prescription of eyewear.

Altogether it is a truly optometric text from cover to cover but written by an ophthalmologist early in this century.

H.W H.

Early optometrist Charles Potter:

OHS member E.J. Fisher sent us a photocopy of an article entitled, "A new ophthalmoscope for photographing the posterior internal surface of the living eye; with an outline of the theory of the ordinary ophthalmoscope" by A.M. Rosebrugh, M.D., which appeared in the March 1864 issue of *The Canadian Journal*, New Series, Vol. 9, No. 50, pp. 81-92. This journal, according to Union List of Serials, went through several title variations during its existence identifying its interests with science, literature, history, industry, and art, and serving as the medium for the Royal Canadian Institute before which this paper was read on January 16, 1864. Professor Fisher comments on the article in terms of the role played by Charles Potter as follows:

> I just received a copy of the enclosed from a friend in the Royal Ontario Museum. It is very interesting to me on several counts, and may be of interest to you or ILAMO. (My friend knows of my interest in early ophthalmic people and sends items from time to time when he runs across them.)
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> 1. In 1864 this paper describes a special type of ophthalmoscope, just 13 years after Helmholtz described his. But this one is a Canadian-made combination of a projection and photographic instrument. When one considers the technology of the time I find this to be almost incredible. Note—kerosene or gas mantle illumination, no semi-silvering on the beam splitter, glass colloidal plates for the photography. To me a development of this type in 1864 is quite exceptional. This was written three years before Canadian confederation.
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> 2. The instrument was made by Charles Potter. Note reference to his name and also the name on the drawing of the instrument in two places. Potter came to Toronto from England in 1853. He worked with a man by name of Hearn as an instrument maker for four years and then started on his own. His brother also came over and started a separate instrument-making company in Toronto. Charles became noted as a maker of instruments for Great Lakes steamers—compasses, sextants, barometers, etc. He also made surveying instruments, and later "magic" lanterns and glass lantern slides. For almost 100 years the business was the major supplier of navigational charts for the Great Lakes. One of our graduates whose father was a tugboat operator, recalls being sent there in the '40s to obtain some charts. Potter also formed the first Toronto Telephone Company which had about 150 subscribers at its peak and was then sold to the present Bell Telephone Company. Of course, people in those days were skeptical about talking

over a wire. When Potter installed a telephone in his own home, a mob gathered, threw rocks breaking a few windows. Eventually the police came to disperse the crowd. Charles Potter moved among the leading social class in his day, and there is a splendid oil painting of him by a noted local artist. "Potter the Optician," the name of the business, was continued by a successor, Charles Petrie whose son continued the practice until 1951 when it was taken over by one of our graduates Dr. Harry Landon. Landon dropped the Potter name as it was no longer legal under our revised legislation. He retired about 1959 and then the practice was continued by Dr. Jack Young. Shortly after Young died the practice was taken over by two 1981 optometry graduates of the University of Waterloo, Drs. Carolyn Jarrot and Cindy Pope. Theirs is an ongoing establishment with a century and a half tradition. Our museum has 3 or 4 pairs of century-old spectacles which came in cases marked with the Potter name.

3. On p. 83, note the experiment outlined starting with paragraph 4. This ranks with some of the much earlier experiments dealing with the elimination of corneal power and has a place in early contact lens history.

4. Finally note the reference to Dr. Noyes on p. 91. As you know, Noyes was Prentice's nemesis. If it is the same person, the work referenced here must have been early in his career, and his altercation with Prentice when he was close to retirement, since there are some 30 years between the events. I wonder who made the Noyes instrument.

I am trying to obtain information about the author of this article, A.M. Rosebrugh, but so far no success.

H.W H.

About W. Jerome Heather:

The following is a copy of a handwritten letter of May 29, 1984, from Maurice E. Cox, already long retired from the editorship of the *Optical Journal and Review of Optometry*, to Andrew F. Fischer, O.D., in response to a note that W. Jerome Heather, O.D., had died:

May 29, 1984

Dear Andy:

It was good to hear from you, although the news of Jere Heather's death added a sad note. However, he was rich in years and, knowing Jere as we did, he was sure to live and enjoy the fullness of them. My memory of Jere goes back to his days as head of the clinic at N.I.C.O. [Northern Illinois College of Optometry]. I'm sure you knew him there before that. Our paths used to cross more often, and he became the professional relations man for American Optical Co. He was highly gifted for that role, as we all recognized. Somehow he always showed me a certain deference and I think I possibly knew why. When I was consistently beating the drum for public relations as a full-time activity for Optometry, the economic aspects of such a program were not neglected. I felt optometrists would continue their usual service of refraction and dispensing, but could enlarge the service with orthoptics, subnormal vision work, and other nonmedical offerings. And the nature of the overall service could be dramatized by spelling out

the individual parts and so justify an adequate, rather a more substantial, professional fee. The price of the optical correction, where required, would be incidental. Thus the O.D. would have a stronger case to present and that would enhance his professional status.

On one of my periodic visits with Harry Ray, then AO [American Optical Co.] advertising manager for many years, we were joined by Charlie Cozzens, V-P [Vice-President] for sales. I think it was before Charles' brief tenure as AO President. They were an attentive audience for my views. It wasn't long before Charlie's quick mind got working and AO announced its "American Plan," for which Jere Heather became the active promoter before optometric gatherings the country over. Jere used his colored wooden blocks to illustrate how the story of optometric service could be told by emphasizing the component parts of the structure. You know the rest of the story.

Shortly before I retired in 1968, Henry Hofstetter told me of the contemplated founding of the Optometric Historical Society. He felt I should belong and spoke of an honorary membership, as I remember. But I was still active with the *Journal-Review* and declined membership as I felt there might be a conflict of interests and loyalties, as the society would be sponsored[2] by the AOA, which was somewhat competitive in the publishing field. Doctor Hofstetter appreciated my position.

Very likely the AOA Journal, "Newsletter" of the OHS, or other publications will give Jere Heather his just due. I liked Jere very much and admired his ability and I wouldn't want his good work to suffer in the least from what I have written here. I'm sure you or any number of O.D.'s or optical men who knew him well can add lustre to Jere's memory. I thank you, old friend, for thinking of me. Keep well and happy,

Maurice

H.W H.

100 years ago:

In the July 1896 issue of *The Optical Journal*, Vol. 2, No. 5, pp. 153-156, the lead article was "Practical Skiascopy" by A. Jay Cross, a paper delivered before the Optical Society of the State of New York, Syracuse, June 2, 1896. Said he, "I do so in the hope that it may awaken more of an interest in this valuable means of determining errors of ocular refraction, than now seems to be given it by 'refractionists' in general, whether opticians or oculists."

The August issue, p. 228, included the following resolution adopted by the Ohio State Board of Medical Examiners: Resolved, That the act of prescribing or adjusting glasses in uncomplicated cases of visual defects shall not be held as practicing medicine within the meaning of this law, but that the act of prescribing glasses or of adjusting the same without the order of a physician in any case in which the vision cannot be brought up to the normal, and in which, in addition to visual defects, there

[2]This was an incorrect presumption. — H.W H.

exists any inflammatory condition, organic change or disease of either the constituent or auxiliary structure of the eye, shall be held as practicing medicine within the meaning of the law.

Under the caption "News of the Month" the September issue, p. 281, reported that "several focusing glasses in O.M. Campbell's display window, Petaluma, Cal., ignited a velvet curtain, but the flame was extinguished before any damage was done."

H.W H.

Anti puffs and quackery:

Identifying himself merely as one who "freely availed myself of facts and observations with which I have become familiar in the course of my own experience and connexion with an establishment of more than one hundred years standing, and, at the same time, to condense in one publication the essence of many voluminous treatises," George Cox at S, Barbican, London, published in 1838 a 72-page booklet entitled "Spectacle Secrets." A second edition appeared in 1844 showing Cox's address at 128, Holborn Hill. A copy of the first edition is at the U.S. Patent Office Library and a copy of the second at the Yale Historical Library. The title pages each list three London addresses at which the booklet was sold, with the notation, "and by all booksellers and opticians."

Facing the title page of each edition is a plate of eight diagrams, two of the cross section of the eye with and without a spectacle lens in place, one of an "Anti Pressure Solid Blue Steel" pair of spectacles, and five cross sections of lenses showing combinations of concave, convex, and plano surfaces.

In his preface to the first edition the author states, "My object has been to provide the public with a compendium of sound and standard information on this most interesting and essential subject, in order that, . . . they may no longer be the victims of ignorant, designing, and knavish speculators, who so mercilessly practise on their credulity." The eight chapters do indeed convey the tone of his purpose by warning the buyer of the schemes of unscrupulous itinerant peddlers, false advertising, scare tactics, outrageous prices, shoddy merchandise, pseudoscientific claims, fraudulent testimonials, untrue allegations of royal patronage, misrepresentations of pebble lenses, etc. The safeguard is to become familiar with the author's technical guidelines and to patronize only reputable opticians. He deplores the lack of any regulations to identify opticians who are qualified.

He defends the importance of his book with a quote from Abbott (unidentified), "The subject is of universal importance, since every man, woman, and child in the empire will probably require optical assistance." He portrays the eye in simple terms and describes lenses, whether of pebble or glass, as simple technical artifacts of long standing not to be described in "new-fangled terms coined to entrap the uninitiated."