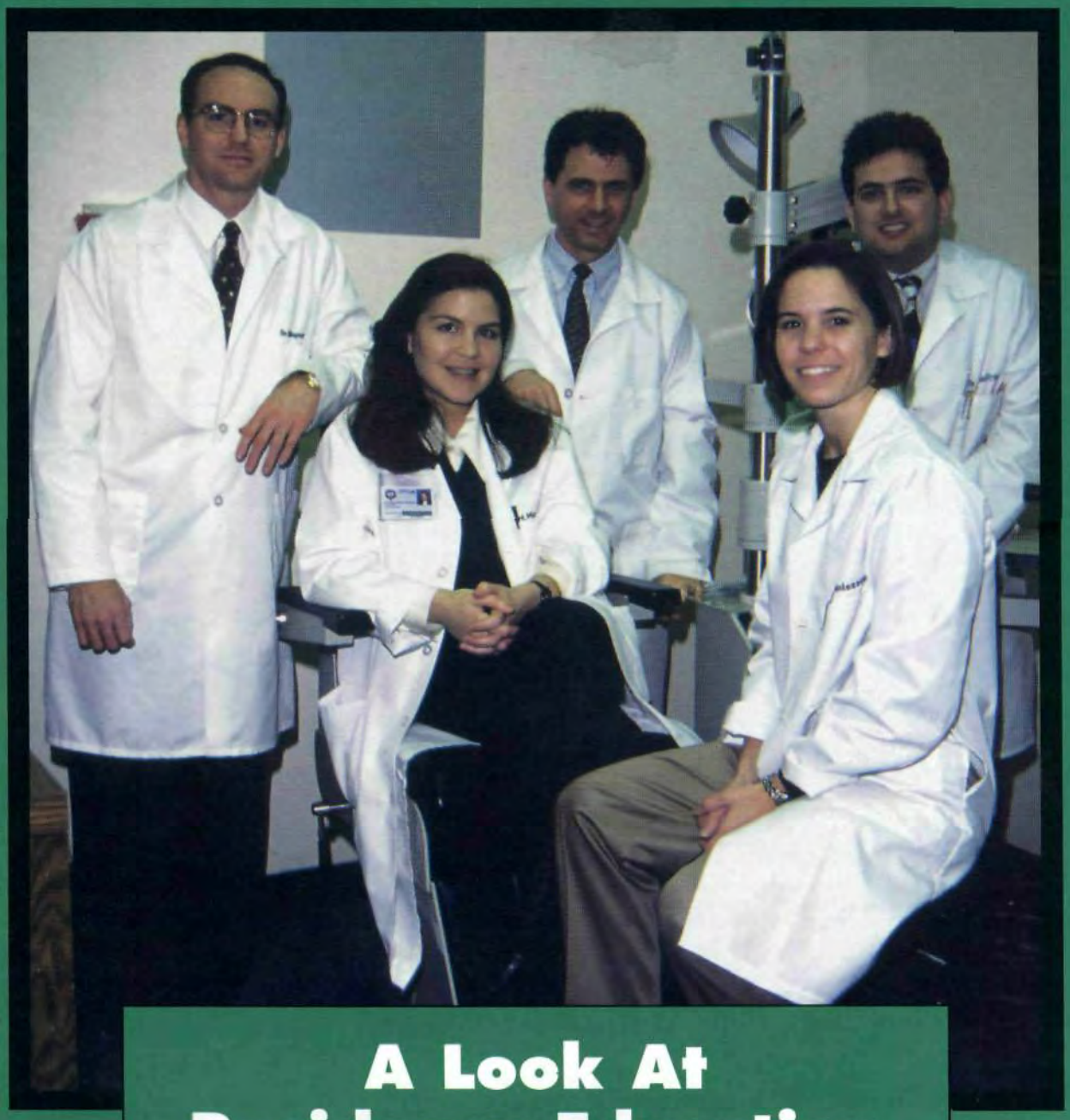
The Journal of the Association of Schools and Colleges of Optometry

OPTOMETRIC EDUCATION

Volume 22, Number 3 Spring 1997



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SPECIAL FEATURE

Residency Education

DEPARTMENTS

Cover: 1996-97 SUNY Optometry Residents (L. to R.) Devin Depner, O.D., Maria Miranda, O.D., Robert Austin, O.D., Diane Santesson, O.D., Brad Meltzer, O.D.
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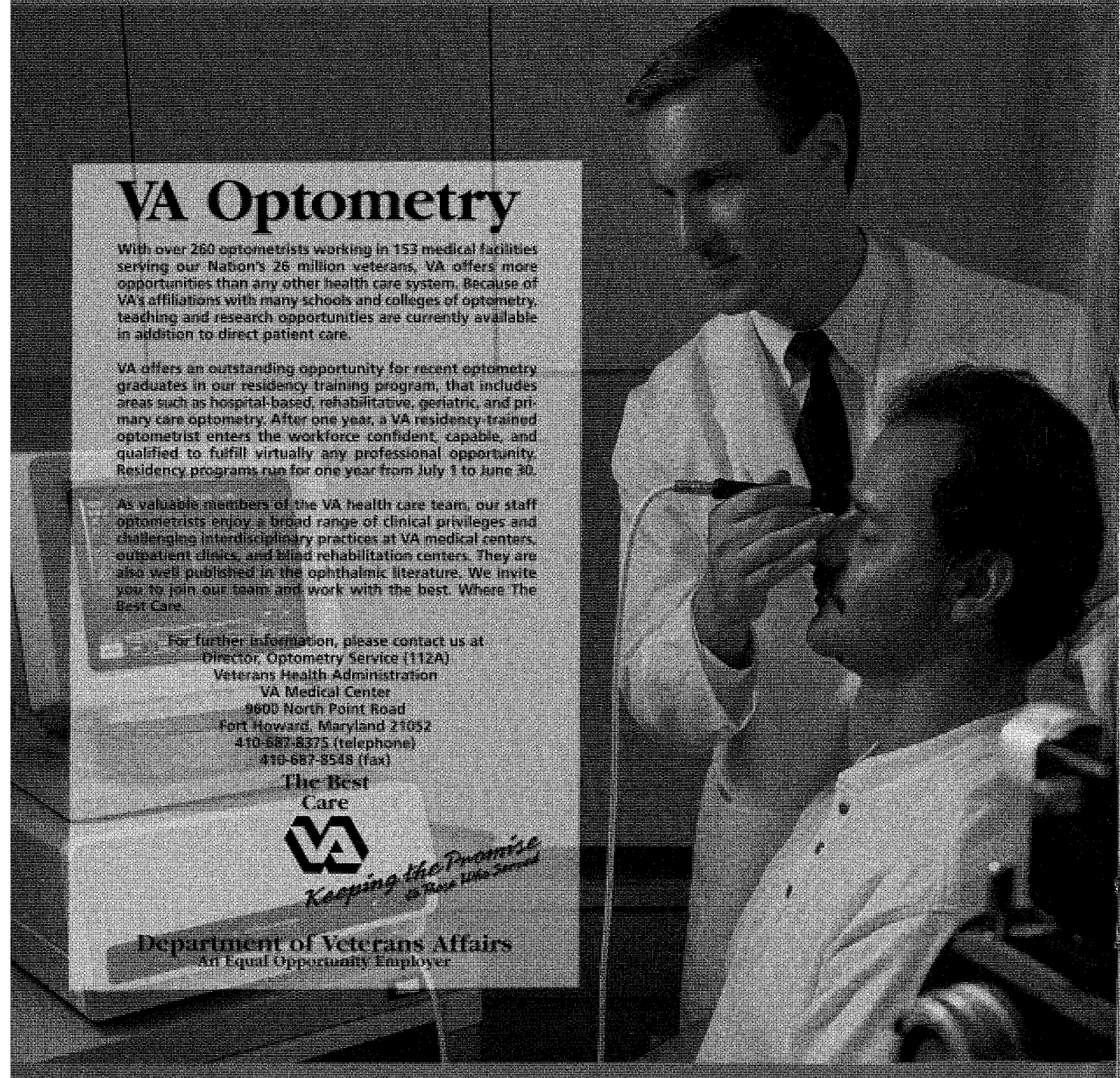

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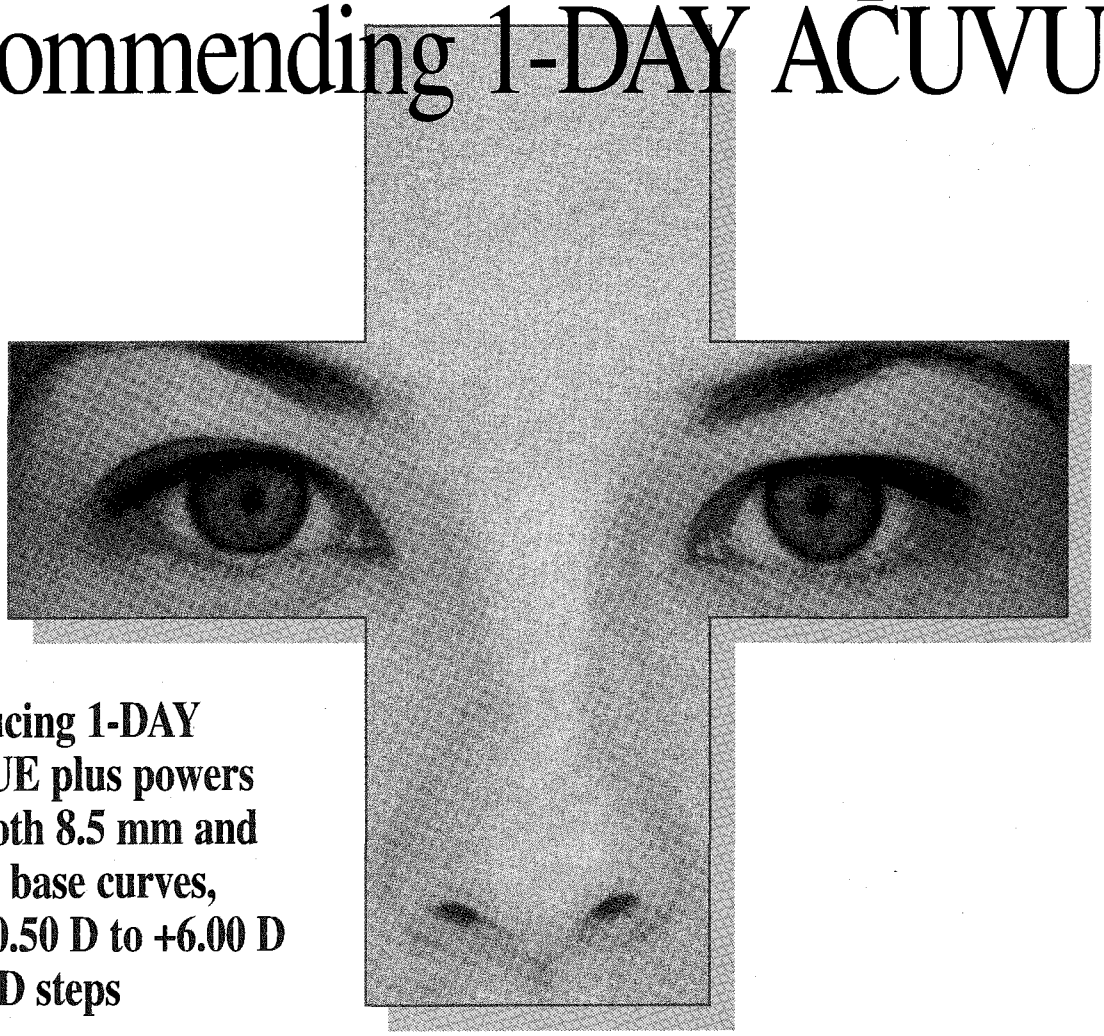

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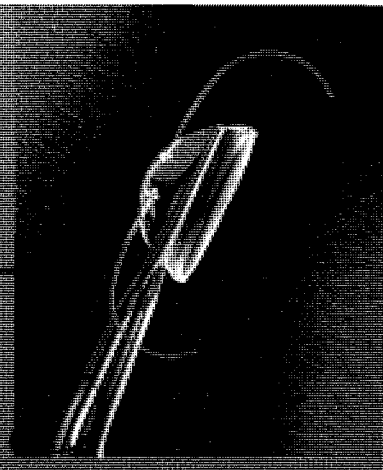

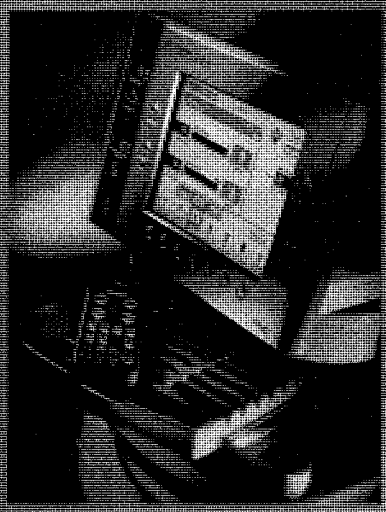

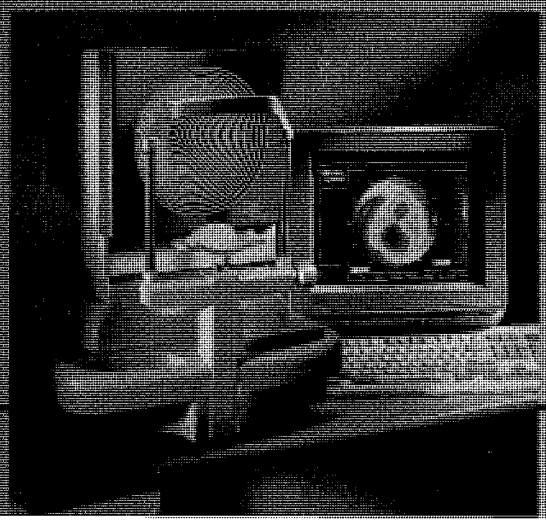

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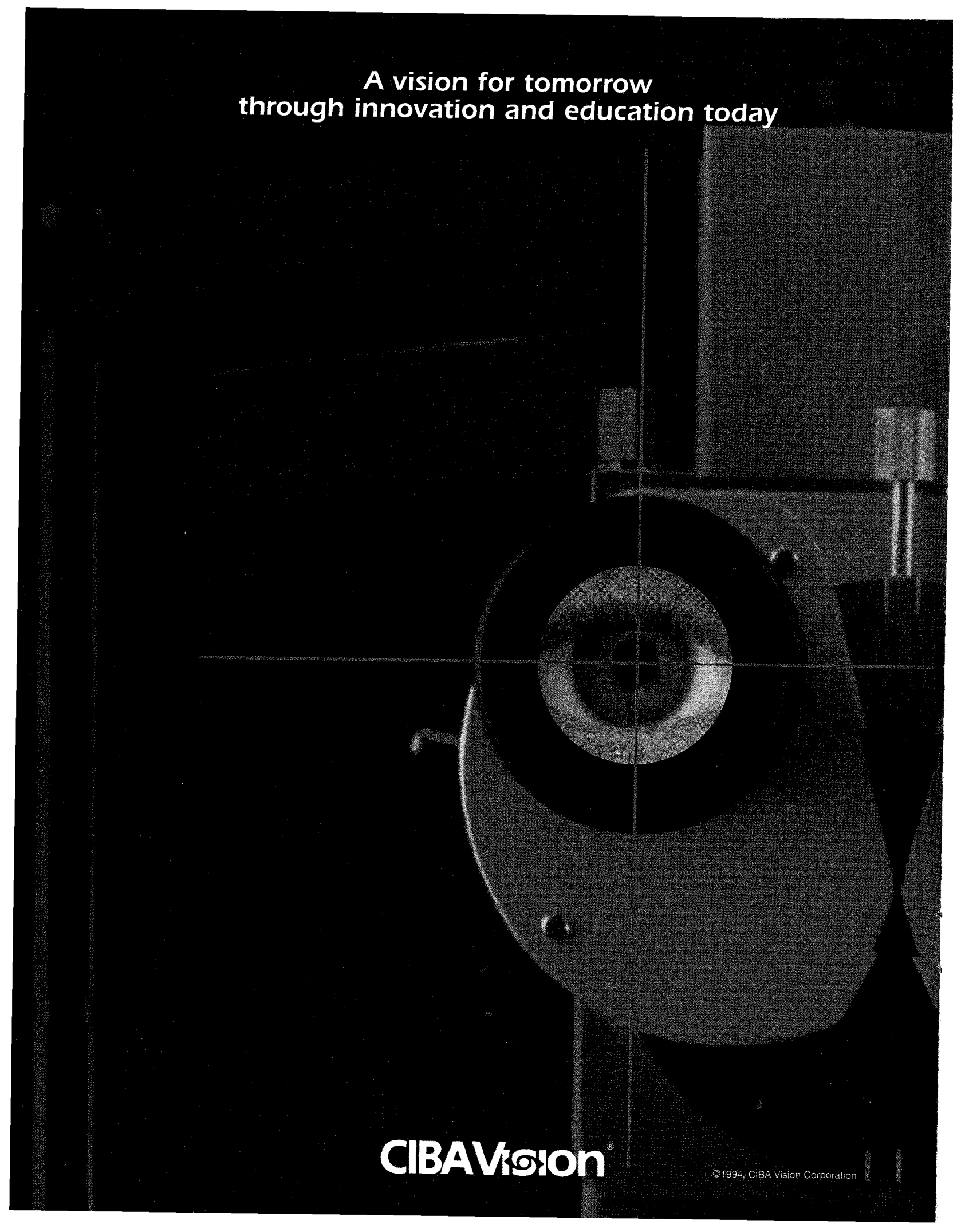
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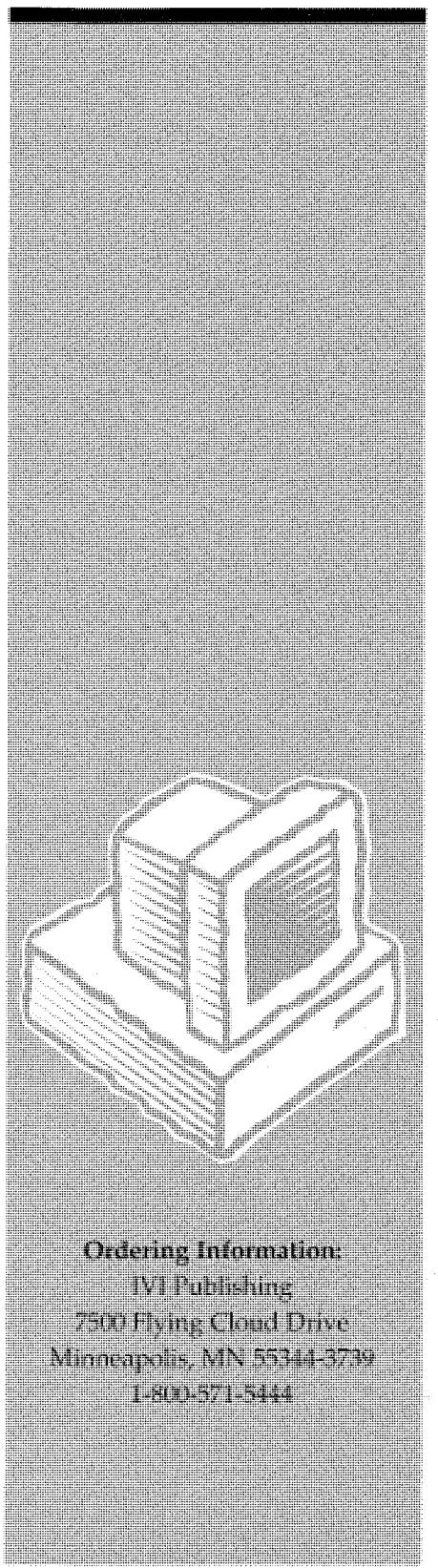
Computer Software Reviews

The Mayo Clinic/Prime Practice: a CD-ROM Quarterly. Mayo Foundation for Medical Education & Research, Minneapolis, MN, $79 per issue, $250 per volume, available in either Windows or Mac.

The Mayo Clinic/Prime Practice is the type of software that immediately catches your interest both as an educator and as a clinician. As stated in the information brochure, it is intended for use by the medical primary care practitioner as a way of updating one's knowledge in one specific specialty per issue. However, it provides far more including a lot of critical feedback; thus as an educational tool it is very well conceived.

One of its major strengths is the way it is organized. For each issue, there are four main topic areas: Hot Topics, Case Studies, Library and Etc. The Hot Topic section consists of several "papers," each written by a specialist, which discuss recent medical additions to the knowledge base, innovations or advances in the field in a succinct yet approachable style. Papers have figures and diagrams which can be accessed and the whole can be printed for distribution to colleagues. The content of the papers is approachable by anyone having current biomedical and clinical training. There is a method for the medical practitioner to check a completion box for later tally for continuing education purposes; it also appears as a red dot which tells the reader which sections have been previously read.

The next topic is a category called Case Studies which consists of a limited number of cases. In the light of the information discussed in Hot Topics, the reader reads a short case presentation and is asked to proceed through patient history acquisition which is interactive. Thus by clicking in the appropriate word, the patient provides the answer "in his/her own words." The clinician then directs the nature of the exam and identifies the laboratory tests from a list of available options. All information gained through these collective procedures is saved in a "Patient Report." The exercise continues by directing the reader to identify the diagnoses being considered from a list of diagnoses, the final diagnosis and the treatment. There is a "consult" button which provides guidance from the issue's editor. As one identifies the final diagnosis, the program tells you if it is correct, incorrect or whether a better diagnosis is available. One can then return to hypothesis, Get a Hint or Provide the Answer. By going to Summary after selecting the best diagnosis, you are told what tests you missed, what is the rationale underlying the choice and you are provided with a cost summary. As a teacher, I found this feature most informative in identifying the rule-outs, and emphasizing the importance of a complete differential process. The cost summary is also a helpful teaching adjunct in that it provides a basis for relating the rationale behind ordering a test to the reality of what each costs. In some cases, there is a patient update button and there may also be additional documentation which I found to be informative and well presented.



In the Library Section, one can access "Chapters" of information on specific topics or a quiz for continuing education credit. Lastly in "Etc," patient handouts, interviews with the editor and letters to the editor are accessible.

Overall, this is an example of a program that contains a wealth of information, yet it is presented in an extremely accessible format and provides the reader with much interaction. I recommend it to the teacher as an example of a soundly conceived application and to the clinician as a great way of boning up on what is happening in a specific medical specialty.

Reviewer: Dr. Pierrette Barker
Pennsylvania College of Optometry

Guest

EDITORIAL

Addressing the Need for Change in Residency Education

Felix M. Barker, II, O.D., M.S., Editor

This issue of *Optometric Education* presents proceedings papers from the second Residency Directors' Educational Conference held August 9-11, 1996 at the Lansdowne Conference Center in Leesburg, Virginia. The conference was convened by ASCO's Committee on Residency Affairs, a committee that was created as a standing body of ASCO during the previous year in recognition of the rising importance of optometric residency education.

The 1996 Lansdowne Conference was attended by over 30 participants, representing nearly every school and college of optometry, the Council on Optometric Education, speakers and ASCO staff. The conference format included invited presentations, breakout sessions and floor discussion on a number of issues previously identified by the Residency Affairs Committee as currently important. Postconference evaluations indicated a high level of interest and involvement by all participants with the proceedings as well as a great sense of satisfaction with the outcomes of the meeting.

This issue of *Optometric Education* features four papers that were presented at the conference by invited speakers. Keynoting the program was Dr. Alden N. Haffner, president, SUNY State College of Optometry, who addressed the historical development of residencies within optometry and pointed out a variety of unanswered questions upon which our future growth and development may hinge. They include issues such as the appropriate numbers of residency programs, consistency in program training topic and most importantly, maintenance and development of access to training sites and to mechanisms of fiscal support. In our view, it is timely to consider these issues, especially since the current trend for increasing numbers of "without compensation" or WOC residency slots within the Veterans Administration would seem to support the notion that demand for residency training is up at a time when growth in available funded training sites seems to have stabilized. There is even danger of some retrenchment in training support in light of plans within the VA to reengineer its infrastructure in ways that will likely cause it to begin moving away from its traditional mission of postgraduate education and training. Not only is this a potential concern for residency education, but, since training rotations within the VA for optometric interns number in the range of 500, it is a situation that bears continued scrutiny by the entire profession.

Reinforcing such concerns about the VA's future directions is the presentation by Dr. Charles F. Mullen, director of the Optometry Service at the Veterans Health Administration at the time of the conference, and currently the president of the Illinois College of Optometry, on the issue of change within the VA. Clearly, according to Dr. Mullen's comments, a paradigm shift is afoot that reinforces the need for the health professions to carefully reevaluate the manner in which they approach residency curricula as well as the relationship of residency education to manpower requirements of each profession.

Continuing the discussion of residency training in the Veterans Administration, Dr. Michael H. Heiberger (SUNY) explores various cost factors that have been associated with postgraduate education of our sister professions within the VA and the practice of dentistry, family medicine and osteopathy. Dr. Heiberger projects a theoretical cost-benefit analysis for a potential residency program in vision therapy which would prove useful as a decision-making template for any clinician contemplating starting a residency or fellowship.

Finally, the issue of excellence in residency training is discussed by Dr. James D. Colgain in his paper on educational parameters and techniques for residency supervisors. This presentation covers a myriad of responsibilities of the clinical teacher toward his/her student that are designed to ensure achievement of the best possible curricular aims and educational outcomes.

In addition to the presentations of the invited speakers, the Lansdowne Conference also provided opportunities for individual, face-to-face contacts between participating residency educators. Such contacts not only foster an exchange of current ideas, but also promote the development of future interprofessional "network" contacts.

Most importantly, this conference signified ASCO's determination to become increasingly proactive in the face of greater and greater challenges to our profession's educational growth and development. Building upon the momentum of the partnership with the AOA in the Georgetown Conference Series, ASCO has now conducted two residency education conferences. ASCO should continue its energetic leadership in this area.

ASCO has also demonstrated commitment to its position of responsibility for postgraduate education by establishing the Residency Affairs Committee. This is a most significant event, which should be applauded and supported.

INDUSTRY NEWS

Companies appearing on these pages are members of ASCO's Sustaining Member Program. Sustaining Members are listed on the inside front cover of each issue. Membership is open to manufacturers and distributors of ophthalmic equipment and supplies and pharmaceutical companies.

Companies participating in ASCO's Sustaining Member Program were asked to describe their current websites. The following companies provided information. Please contact their sites directly to learn more about the companies. Links are also provided to sustaining member companies on ASCO's website (www.opted.org).

Bausch & Lomb
www.bausch.com

Contains product information, company news and employment listings for the global eye care company whose core businesses include soft and rigid gas permeable contact lenses, lens care products, premium sunglasses and ophthalmic pharmaceutical products.

Ciba Vision Corporation
www.cvworld.com

The site has three sections: *Prosight* is a reference for eye care professionals which includes a *Guide to Clinical Contact Lens Management,* a forum in a bulletin board-like service where questions can be posed under pre-determined headings, and a conference center listing professional meetings around the world. *Forsight* addresses consumer questions about how the eye works, common eye conditions and contact lenses. The last section, Onsight, is a corporate information section.

Polymer Technology
www.polymer.com

On *Websight,* interested eyecare professionals and consumers can find timely information about Boston materials, lenses and solutions. Websight offers a Visioncare and Health Forum that provides expert answers and commentary on frequently asked contact lens questions and eyecare topics. The Boston Lens internet e-mail address comments@polymer.com is included on Boston solutions packaging so practitioners and consumers can communicate via the Internet with Polymer Technology.

Marchon/Marcolin Eyewear
www.marchon.com

Marchon's site represents over 28 pages of interesting facts about eyewear with topics ranging from manufacturing to the inside scoop on which celebrities wear Marchon. It gives background information on the company and its over 600 styles of eyewear and 14 exclusive eyewear collections. The site invites consumers to browse and learn more about these collections and provides opportunities to enter a sunglass sweepstakes and receive tips on selecting eyewear.

Sola Optical USA
www.sola.com

Resources for the Eyecare Professional informs users about new products, lens information, and laboratory information. Features include a Tip of the Week and a monthly column by Mike Morris, O.D. A *Consumer Guide to Vision Care* lets consumers know what's involved in an eye exam, common eye conditions, and lens design and material options. Also available is *Hindsight: The History of Eyewear,* a digital exploration of humanity's attempts to correct vision defects. *Focus on Sola* provides information on Sola Optical USA and Sola International, a timeline of key events in Sola's history and a list of employment opportunities at Sola Optical USA.

Varilux Corporation
www.varilux.com

The Varilux website offers information for professionals, direct communication with Varilux, interactive applications, new product information and free online support.

Vision Council of America (VICA)
www.visionsite.org

For Vision Expo exhibitors, *Industry News* solicits information from VICA members on company news, media releases and new product announcements. A monthly profile will showcase an eyecare professional and his/her marketing success story. The feature will cycle through the three O's; professionals can nominate colleagues or themselves. An interactive *Frame Game* will be expanded to include full sets of women's and men's face shapes. VICA is also planning a Before and After makeover feature with photos.

Vistakon
www.jnjvision.com

The site contains more than 400 pages of material that can be viewed with any of the available Web browsers. Plans call for enhancements including a compendium of articles from eyecare journals. The CE portion is password protected. To get the password, call Vistakon's Professional Affairs Department at 1-800-876-6644. The CE courses available are: *Monovision Correction of the Presbyope, Teens and Contact Lenses: Fitting and Care, and Solving Soft Contact Lens Problems and New Practice Opportunities with Disposable Contact Lenses.*

Volk Optical
www.volk.com

The site features a comprehensive listing of Volk's products and services, as well as company background and pricing information. Volk Optical is a leading manufacturer of quality diagnostic and therapeutic lenses and accessories.

(Continued on page 95)

The Lansdowne Residency Educators' Conference

August 9-11, 1996 Lansdowne, Virginia

Introduction and Evaluation

Irwin B. Suchoff, O.D., D.O.S.
Douglas J. Hoffman, O.D.

Residencies are a relatively recent addition to optometric education. The first optometric residency program was established in 1967 at the Optometric Center of New York. It was an intensive three-month postgraduate program in developmental vision. Currently, there are close to 90 year-long residencies accredited by the Council on Optometric Education (COE), and these programs accommodate about 130 positions. In general, residencies are designed to enhance the resident's clinical knowledge and patient care skills beyond entry level in one area of practice.

As the numbers and types of residency programs increased over time, many of the involved optometric educators and administrators became aware that there was no specific forum available to communicate in order to share information and expertise. Indeed, when they did talk to each other, it often became apparent that "the wheel was being reinvented" unnecessarily.

Dr. Suchoff is director of residency education at the State University of New York, State College of Optometry. Dr. Hoffman is director of residency education at The New England College of Optometry. They are members of the Residency Affairs Committee and were the facilitators for the Lansdowne Conference.

However, in August 1990, the American Optometric Association (AOA) sponsored the first formal conference on residency education in St. Louis. It was attended by educators and administrators representing individual programs and the schools and colleges of optometry. Drs. John Amos and Irwin Suchoff led a program which consisted of several individual presentations, topical breakout groups and opportunities for interactive discussion. Postconference evaluations strongly indicated a need for further meetings.

The next significant residency meeting occurred in Boston during August 1993 as part of the Summit Series on Optometric Education planned and conducted by the Association of Schools and Colleges of Optometry (ASCO) and AOA. This meeting, moderated by Dr. Richard Hopping, focused on graduate education, with an emphasis on residencies. Many in attendance gained ideas, insights, and information which they brought back to their programs and put to immediate use. Perhaps the most important result of this conference was the realization and willingness by ASCO to assume a more proactive role regarding residencies.

Consequently, in March 1995, ASCO sponsored its first Residency Directors Educational Conference in Birmingham, Alabama. The conference was coordinated by ASCO's Clinical Affairs Committee, chaired by Dr. Alan Lewis. Conference participants recommended that a Committee on Residency Affairs be established within ASCO's structure. A motion was proposed by the Clinical Affairs Committee and accepted by ASCO's Board; during the summer of 1995, the Residency Affairs Committee was established. Members were appointed, and a charge was given to the committee. Short and long range goals and objectives were derived from the committee charge, thereby defining the committee's activities.

The second ASCO Residency Directors' Educational Conference was held August 9-11, 1996 in Lansdowne, Virginia, and is the theme of this issue of *Optometric Education.* The meeting was arranged and conducted by the Residency Affairs Committee with support from ASCO staff.

Over 30 attendees participated in the Lansdowne conference, including representatives of the schools and colleges, the Council on Optometric Education (COE) and invited speakers. The format included the invited presentations (the texts of which follow this introduction), breakout sessions and a case study. The meeting provided an opportunity to gain a more diverse input on issues previously addressed by the Residency Affairs Committee.

Conference evaluations indicated that the meeting was well planned, organized and conducted. Participants felt that the topics covered were appropriate, timely and important considerations, both in the broad national sense and regarding the responsibilities each school or college has for the educational integrity of its residency programs. Further, it was apparent that attendees' face-to-face interchanges resulted in the formation of new networks and sharing of valuable information.

In our minds the meeting pointed out several inter-related issues that are key to the continued development of optometric residency programs. These topics surfaced many times during the formal presentations, in the breakout groups, and during the general discussions. No ranking has been given to the issues since they are all equally compelling.

The question of the **number and kinds of programs that are necessary** has been formally addressed on several occasions. It was perhaps initially raised during the first Summit on Optometric Education in February 1992 and addressed more fully at the Summit Conference of August 1993 referred to earlier. This topic was also discussed and recommendations were made during ASCO's first Optometric Residency Education Conference, in 1995. Keynote speaker, Dr. Norman Haffner, also addressed this question at Lansdowne. The answer is not easy to arrive at because it encompasses a dynamic between the public, the profession and the health care system. Yet, it is one that needs to be determined soon.

A related issue is the **trend toward uncompensated optometric residency positions.** The number of uncompensated positions has increased, particularly in the programs conducted at facilities of the Department of Veterans Affairs (VA). Undoubtedly, this is a case of the demand outstripping the supply; there are at least some recent graduates who are willing to devote a year of their lives in unsalaried positions (without compensation or WOC) in order to gain clinical experience and education beyond entry level. While this is most likely a cost-effective method for the VA to obtain care for its public, particularly in this time of downsizing, what are the consequences to the profession now and in the future? Further, if this practice is condoned in the VA, should the schools and colleges — equally threatened by the realities of managed care — seek to establish WOC lines in their other residencies? But the more cogent issue is whether this practice is a case of selling tomorrow for today.

The feasibility of **standardizing the names of the various residency programs** was first raised at a COE meeting several years ago by Dr. David Sullins, then member and now chair, of that body. It was decided at that time that this issue was an ASCO, rather than a COE responsibility. A recommendation was made to ASCO which was referred to its Residency Affairs Committee. A task force was formed to study the issue. The Residency Affairs Committee concluded that it is both logical and in the best interests of the profession to develop a limited number of categories into which the various residencies can appropriately be determined. Several forces have to be considered. Forces to be considered relate to optometry's identification of itself as the primary eye care profession. Therefore, a reasonable approach would be to designate all programs as, e.g., "residency in advanced primary care" or "residency in optometry." A phrase, such as "with emphasis in," would then be added to describe the particular area of optometric care in which the resident will have the greatest clinical education and patient care experience.

■

"...plans to reengineer the VA's infrastructure and health care delivery system raise concerns for all the disciplines that have depended upon it for education and training."

However, primary care optometry encompasses a number of areas, i.e., low vision, ocular disease, binocular vision and perception, and contact lenses. Thus, to truly reflect the name, residencies would be required to contain these components. There are ramifications to this concept that need to be and will be considered by the task force before it makes its recommendations to ASCO.

The VA has, for several decades, provided an educational training ground in internships and residencies for many of the health care professions. The VA has been a major factor in optometry's ability to prepare final year students to perform to the limits of a relatively recent expanded scope of practice. Presently, optometry students account for some 500 rotations at VA facilities. The VA was one of the founding fathers of residencies and continues to be a major player today. However, **plans to reengineer the VA's infrastructure and health care delivery system** raise concerns for all the disciplines that have depended upon it for education and training. For optometry, these concerns are true not only for residencies, but also for its clinical educational component.

As the challenges facing optometry over the past decade have become more numerous, it is evident that ASCO has become increasingly proactive. The partnership that was forged during the Summit Series continues to develop. Moreover, ASCO has changed in many ways. Its ability to recognize the challenges and commit resources to address them has been impressive. Nevertheless, there was a general feeling at the Lansdowne meeting that, at least for residencies, while much was accomplished, there is still much more to be done. This will require continued and increased dialogue and planning by ASCO, its member institutions and those optometrists who are interested in residency education.

Note: ASCO has adopted COE's terminology regarding residency education. A residency director is the person at the school or college who is responsible for all the programs sponsored or affiliated with the particular institution. A residency supervisor is responsible for the day-to-day running of the particular program. ■

Keynote Address

Optometric Residency Education: Past, Present and Future

Alden N. Haffner, O.D., Ph.D.

Historical Considerations

The history of organized postgraduate clinical optometric education can be traced back to the late 1960s. While it was 1976 before the first residency was formally accredited, the roots of modern residency education can be found in earlier programs such as the three-month advanced clinical training program in vision therapy that was initiated in 1967 at the Optometric Center of New York. Though immensely popular from the outset, this "certificate" program was neither formally recognized by any group or body with official standing, nor was it subject to any peer review or accreditation assessment. Indeed, the profession of optometry had no methodology for such an assessment and no optometric professional organization was charged with any responsibility for assessment or approval of post-OD clinical education.

Optometric Residency Accreditation

In 1976, after much debate within the American Optometric Association (AOA) and the Association of Schools and Colleges of Optometry (ASCO), it was determined that while the schools and colleges of optometry were responsible for the conduct and quality of our postgraduate education, it would fall to the Council on Optometric Education (COE) to assume responsibility for evaluation and approval. This decision was reflected in an AOA By-laws revision:

> "The Council on Optometric Education shall concern itself with the quality of optometric and paraoptometric education including, but not limited to, counseling, advising, and acting in matters relating to recurrent and residency programs, the type and amount of equipment and matters of similar nature. It shall have the authority to inspect and accredit schools and colleges of optometry and programs of paraoptometric education and shall have the authority to inspect and approve programs of recurrent and residency education."[1]

Since the period of that historic debate and milestone decision twenty years ago, the COE has drafted and codified a manual of standards for residency education. Throughout the interim, these standards have been updated continually through a dynamic profession-wide consultative process that has lead to a very sophisticated set of accreditation criteria.[2]

The Growth in Optometric Residencies

The current popularity and significance of residency training to the profession is reflected in the substantial growth in available programs, but especially in the number of residency sites seeking and obtaining COE accreditation. Since the inception of the COE process, the number of accredited residency positions within our system of optometric education has risen to 82, with most of this growth occurring over the past 10 years. Figure 1 illustrates this growth, highlighting as well the significant task of the COE to maintain its oversight responsibility for this system of postgraduate education.

The current rapid acceleration in numbers of optometric residency programs is not surprising for a number of reasons. There is a tremendous "value-added" benefit for the entry level graduate attending the residency program. This value has been recognized for some time in other health care professions which have relied on residency training as an integral part of their practitioner preparation. There is also a limit in each school or college in how advanced the training can be in more specialized areas of practice such as vision training, low vision, disease management and the like. Residencies have a real and positive impact in these specialized areas, and so their growth as a vehicle within optometric education ought to be expected. Nevertheless, the many external forces that are signaling change in today's health care market will undoubtedly have ongoing effects upon all postgraduate educational programs. In order to prepare ourselves for the impact of these forces, we need to look outside the profession over the broadest possible horizon of information sources.

Other Professions

In this regard, highly significant recommendations have been made over the past two years that will undoubtedly affect residency training in our sister professions and of which we must be aware in order to plan for our own future program growth and

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development. This year the PEW Commission, in its third report on revitalizing the health care professions[3], called for a reduction in the number of medical residency positions to a level not exceeding the total number of U.S. medical graduates plus ten per cent. This recommendation was echoed by the Institute of Medicine which called for funding of slots much closer to the number of U.S. graduates.[4] Further the Institute of Medicine report would freeze school enrollments and new school openings, while a more dramatic Pew recommendation would close 20-25 % of the nation's medical schools by the year 2005 with concurrent proportional reductions in residency positions.

In addition to a reduction in the number of graduates and training positions in medicine, the character of the remaining system of education would be altered substantially. The Institute of Medicine has called for primary care to become the "core mission" within all academic health centers with the Pew Commission recommending that by the year 2000, 50% of Graduate Medical Education (GME) training programs should focus on family medicine, general internal medicine and general pediatrics. In furtherance of these educational mandates, these two deliberative bodies also recommend moving more of the clinical experiences in postgraduate training into sites such as ambulatory, community and managed care settings that offer the trainee experiences in "primary care," especially in underserved areas. [5]

The importance of other health professions is also a major feature of these recommendations. In addition to changes in the training of physicians, both the Pew Commission and the Institute of Medicine have recognized the need to utilize other professions such as nursing[6] in leadership and in direct care positions and to integrate expanded residency educational programs in professions such as dentistry[7] within medical schools and academic health centers.

While the Pew Commission acknowledges the primary care "gatekeeper" role of the physician, the Institute of Medicine also recognizes the need to redefine the concept of a primary care physician not only within medicine but also to include other "first contact practitioners" such as optometrists and dentists.[3,4] However, with the current relative lack of interdisciplinary training opportunities, there is a problem of isolation to overcome. Thus, the training of all primary care practitioners in interdisciplinary settings will produce, not only enhanced access to care by those in need of a wider variety of services, but also a strengthening of the "two-way relationship" between the primary care physician and other primary providers such as optometrists.

What's in a Name?

In light of the foregoing, optometric education faces a number of specific concerns that relate to how well we will be able to interface with the rest of medical education. While there is no doubt that a great many of our postgraduate clinical training programs are primary care oriented, this may not be obvious to the outside observer. The current nomenclature of optometric residency programs is based primarily on historical terminology often related more to the location of the program than to its clinical content thrust. Table 1 lists the major descriptive term used in each of the COE accredited residency programs, and it is clear to see from this that "hospital-based" is the most popular nomenclature with much smaller numbers of programs deriving their identity from the type of patient base that is served. It is my belief that the principal impression of our colleagues in medicine about optometry rests with the terminology we present them. This makes it critically important that optometry reach a profession wide agreement about the nomenclature of residencies and this nomenclature ought to make sense not only to us but also to those outside the profession.

Program Content

The naming of a program of advanced clinical education is not an ethereal exercise. It is essential that it should be congruent with the program title or designation and that at least 85% of its content be focused on the clinical subject area in order to "qualify" for the title. It is also important that we make clear distinctions between types of post-O.D. education. For, indeed, residency education is concentrated advanced clinical education *limited* to a subject area. As educators, we would make a serious error in judgment if we were to confuse residency education with a clinical internship. Undoubtedly, this error has been made already and needs rectification.

Resident Numbers

It is important that we address the problem of numbers of residents in a program. Other professions usually

Table 1
The occurrence of descriptive designations used in the titles of COE accredited (or candidacy pending status) Optometric Residency Programs in 1996*

Descriptive designation	Number of Programs
Hospital Based Optometry	39
Low Vision/Vision Rehabilitation	10
Ocular Disease	9
Primary Care	7
Contact Lens	6
Pediatrics	5
Family Practice	4
Geriatrics	3
Vision Training/Therapy	2
Ocular Pathology	1
Contact Lens Research	1
Optometry	1
Secondary Ophthalmic Care	1
Multidisciplinary Care	1

* The total number of descriptions exceeds the number of accredited residencies because some programs use multiple descriptors

require a minimum of two residents in each program. The purpose of this is to enhance the learning environment by providing for greater discussion between individuals, mentoring and sharing of clinical experiences not only between preceptor and resident but among residents. Unfortunately, some existing residency programs do not have a sufficient patient base or salary base that would support more than one resident. This is an area that we need, nevertheless, to address by setting a goal upon which we can all agree.

Curriculum

Historically, in health professions education, curriculum has assumed a well structured and predictable set of requirements governing prerequisites, content, sequencing and expected educational outcomes. The responsibility for curriculum has traditionally been a collaborative one among faculty, students and administration, who, through a very dynamic process, are continually involved in an ongoing refinement of this all important road map of our educational process. Unfortunately, optometric residency education has not, during its first 25 years of activity, achieved a uniform degree of sophistication in its curricular content and structure. I believe that it is essential for the future growth and development of residency education to achieve the same sort of curricular sophistication as currently exists within our professional degree programs.

Residency Education as a Qualification

Programs of residency education are completed with the awarding of a certificate issued jointly by the sponsoring clinical entity and the affiliate school or college of optometry. When combined with a graduate degree, the conferral also relates to the degree. No formal recognition of specialization has, thus far, been adopted by the AOA though this consequential matter has been rather intensively studied in the past. However, the American Academy of Optometry (AAO) has, in the 1980's, established several clinical and professional areas of advanced competency recognition entitled "diplomates." Achieving diplomate status within the Academy involves a process of qualification, examination, recognition and recredentialling in the areas of: low vision, cornea and contact lenses, binocular vision and vision therapy, or public health and environmental vision. While residency education is often quite helpful to diplomate candidates, it has, as yet, not been considered a requirement to achieve diplomate status. Moreover, it is important to note that during the 1980s, some schools and colleges of optometry have begun to require a residency training program as a basic qualification for new clinical faculty members. Thus, the residency program is becoming more than just a training program; it is also becoming a qualification for advanced recognition and for employment within some institutional practice settings. What will happen in the private practice setting remains to be seen, although growth in available residency positions will undoubtedly stimulate greater interest in hiring graduates with this "added value" training.

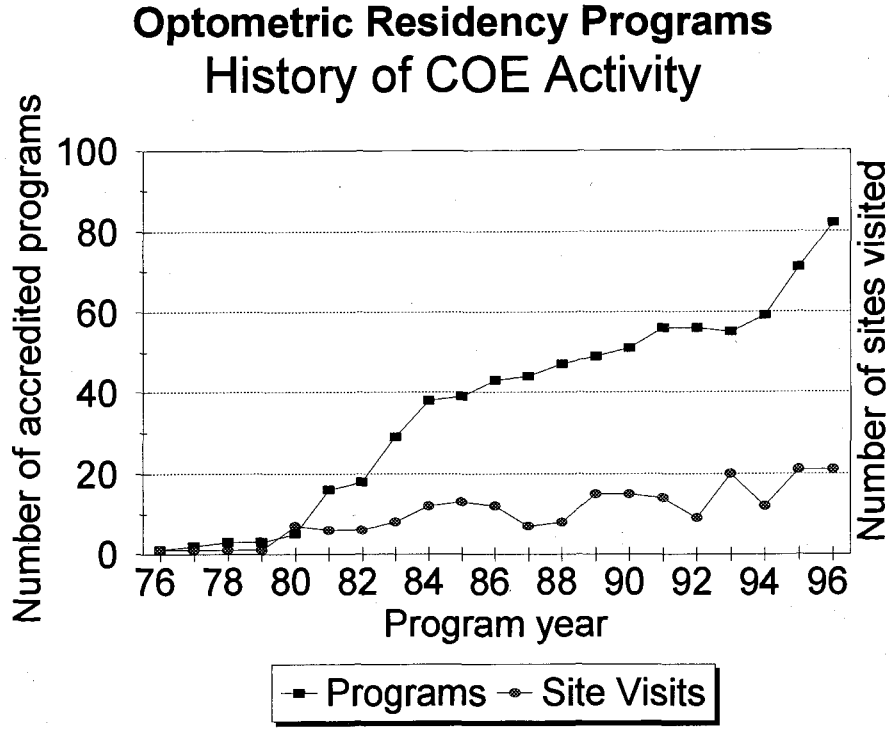
From the legislative perspective, it is worthy of mention that in the New York statute, Chapter 517 of the Laws of 1995, the accredited residency is cited as a qualification. In 1996, legislation enacted in Maine makes reference to a one-year residency program but does not mention accreditation in relationship to such a program.

Implications for Entry Level Competence

In 1992 at the AOA/ASCO sponsored Conference on the Scope of Optometric Practice, Georgetown Summit Series on Optometric Education,[8] the conferees formally and unanimously adopted a major operational statement. This statement was entitled, "Optometry: a Responsible Profession" and was, furthermore, adopted unanimously by the AOA Board of Trustees as a policy statement in October of that same year:

> "The profession of optometry fulfills the vision and eye care needs of the public through clinical care, research and education, all of which enhance the quality of life.
>
> "Optometric knowledge and practice includes the prevention, examination and evaluation, diagnosis, rehabilitation, treat-

Figure 1
Plot of the number of COE-accredited residency programs by year along with a plot of a COE site visit activity by year.



ment and management of disorders, dysfunctions and diseases of the visual system, the eye and associated structures; and the evaluation and diagnosis of related systemic conditions.

"Optometric practice is dynamic, with the emphasis of patient care services at the general practice level. Responding to the changing needs of society, the profession must have access to all methods and modalities of contemporary practice.

"Entry level competencies include the professional attitudes, skills and knowledge base required to assure safe and effective patient outcomes and to support life-long learning. The maintenance of continuing competencies and professional growth must be ensured by continuing learning and assessment and thereby it sustains the integrity of the professional licensure. Additional education and training provide advanced practice skills and knowledge in specialized areas beyond those requisite at entry."

The last sentence of this policy statement, a quite consequential one, directly relates to residency education, pointing to its importance as a means of dealing with our profession's broad scope of practice, particularly where TPA utilization is concerned.

The Number of Residency Programs

Reference has already been made to the PEW and Institute of Medicine (IOM) reports as they relate to medical and dental residencies. Pew and IOM suggest expansion of dental residencies and recommend that half of all medical residencies should be in general care but with residencies open to 110% of its annual graduating class.

While our profession does not have carefully assembled data, I believe that there is fair agreement that the demand for advanced clinical education beyond that provided within the O.D. curriculum has been growing stronger in recent years. The growth in numbers of residency programs is, in part, a reflection of this interest and demand. There are approximately 1400 graduates of the schools and colleges annually at current enrollment levels. The present number of residency programs, accredited and in candidacy status, however, comprises only 139 positions. Clearly, were about half of our annual graduates to enter a residency (around 700 residents), there would need to be nearly a five-fold increase in slots. That magnitude of growth would be phenomenal and, in my view, would take much more than a decade to accomplish.

I am of the belief that, notwithstanding the monumental clinical program planning, costs and faculty-mentor resource implications, that goal can be achieved — and I believe that we will be challenged to achieve it — by 2020. The workforce (or manpower) calculus for our profession continues to need careful and ongoing study and analysis. My colleagues have heard me emphasize this theme time and time again. But the remarkable implications of an optometric workforce, one half of which is residency trained in formally and rigorously accredited programs, have vast consequences for our profession. Among these are our standing as a discipline, the clinical importance of our work and the acumen of our workforce. These three elements cannot be underestimated or compromised as we continue to integrate new knowledge and new technology into optometry, a mandate that the forces of advancing health care will not allow to deteriorate.

"...special tribute must be extended to the Department of Veterans Affairs without whose absolutely critical help we could not have ...accomplished such remarkable growth."

Resource Issues

The schools and colleges of optometry have sustained financial pressures of unprecedented levels during the last two decades. Without significant incremental resources, a process of reallocation has occurred in each institution in order to accomplish two major undertakings. The first clearly relates to the significant expansion of the knowledge base in optometry occasioned by the increase in the scope of professional responsibility and related TPA utilization. The second, for fairly obvious reasons, relates to the added major institutional responsibilities in order to sustain the educational integrity of proliferating programs of residency education. Moreover, in the face of these urgent needs, the optometric education enterprise has had to find sufficient resources to fund residency stipends when programs were offered in the clinics of our schools and colleges.

With regard to residency education, special tribute must be extended to the Department of Veterans Affairs without whose absolutely critical help we could not have, thus far, accomplished such remarkable growth. I add, however, two cautionary comments. Budget cutbacks, in the VA generally and in medical residency programs specifically, will undoubtedly have reverberating negative impact upon optometry. I am deeply concerned about this matter because optometry has so many residency programs with the VA. Furthermore, an emerging new phenomenon of stipend-free residency positions is, in my view, deleterious to the integrity and viability of residency education. We are now up to as many as 10 in the VA and with a larger but unknown number in non-VA-sponsored programs.

Without doubt, it is critical that there be an infusion of incremental resources in order to relieve the financial pressures demanded of residency education. That a statutory mechanism exists that optometry has not used, is in my opinion, inexcusable. If we do not now focus upon this matter, AOA and ASCO will be subject to grave criticism. Part C, Section 1881 of the Social Security Act [42USC 1395x (b)(6)] should be amended to add optometry. This section already includes the professions of medicine, dentistry and podiatry. A fair case can be made for the inclusion of our profession.

In view of the probable restructuring of Medicare and Medicaid, Senator Daniel Patrick Moynihan (D.-N.Y.) has introduced (as have other legislators) "The Medical Education Trust Fund Act" (S.1870)[ed. note: reintroduced in the 105th session of Congress as S21]. That proposed leg-

islation rests upon the inclusion in the section of the Social Security Act previously referenced. Optometry's continued absence from that part of the statute jeopardizes any future potential public financing of residency education as envisioned in Senator Moynihan's proposed legislation. This is a matter of some urgency which should capture the attention of the profession. ASCO must petition the AOA to make this matter a legislative priority. It is long overdue. The advent of managed care pressures simply add to the compelling nature of this issue.

Conclusion

Residency education in optometry is a phenomenon of the last quarter century. Its growth was spurred by the expansion of the scope of professional responsibility in virtually all state jurisdictions. Moreover, the need for advanced clinical skills generally and for concentrated specialized skills have spurred the development of residency programs. The profession clearly has a need to sort out the programmatic and structural differences between residency programs leading to advanced clinical skills and knowledge in a specific disciplinary area as opposed to advanced general skills as in an internship program. It is an important task that remains unresolved.

The process of peer review and accreditation has brought codification of standards as applied to residency education. But much work remains to be accomplished in order to achieve the sophistication that exists in our professional educational programs. Indeed, there is still a need to develop and to rationalize the integration of professional education with residency education. A reasonable start has been made but much work remains to be done in this regard.

The American Optometric Association has made an initial effort for a long awaited and seriously needed workforce (manpower) study of the profession. It is so critical to our planning efforts that any delay will be detrimental. However, the profession has undergone a remarkable metamorphosis in its scope of practice and in its education. More than a manpower study is needed, in my respectful opinion. The Havighurst Study, [9] the only public study of the profession, reported its findings more than a generation ago. Residency education and expanded scope of professional responsibility were not part of that study. They simply did not exist. The creation of a new study would gain much for the standing and recognition of optometry. The time is ripe and the reasons for it are compelling. In my view, workforce studies should be undertaken in the context of a major public study of the profession.

There will be many additional national conferences on residency education in optometry during the coming years. We are growing in our efforts, and that is professionally and educationally healthy. Thank you for allowing me to share with you some of my thinking on residency education as we prepare to make our optometry a stronger and more vital profession in the public service.

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ASCO Meetings Calendar 1997

June
10th — Executive Committee (St. Louis, Missouri)
10th-11th — Annual Meeting (St. Louis, Missouri)
11th — Annual Luncheon (St. Louis, Missouri)
13th — Sustaining Member Advisory Committee Breakfast (St. Louis, Missouri)

July
18th-20th — Ophthalmic Optics Educators SIG Conference (Westfields Conference Center, Chantilly, Virginia)

September 1997
25th-28th — Clinic Directors/Administrators SIG Meeting (Ft. Lauderdale, Florida)

October 1997
16th — Executive Committee (Chicago, Illinois)
17th - 18th — ASCO Board of Directors Meeting* (Chicago, Illinois)

April 1998
2nd — Executive Committee (Houston, Texas)
3rd — Board of Directors Meeting (Houston, Texas)
3rd-5th — Critical Issues Seminar (Houston, Texas)

*In conjunction with the inauguration of Dr. Charles Mullen as President of ICO

Financial Implications Of Residency Programs For Sponsoring Organizations

Michael H. Heiberger, O.D., M.A.

Introduction

This paper explores some cost implications of residency programs within the Veterans Administration health care system. In addition, the costs and benfits of residencies in family medicine, osteopathic medicine and general dentistry are examined because these are the residencies which most resemble optometric residencies, and there exists a body of literature concerning them. The only published study of costs associated with optometric residencies[1] reports on resident salaries, fringe benefits and faculty support at 12 institutions. The results of a detailed cost study of one particular optometric residency program are presented and discussed.

Residencies Within the VA

Campbell et. al.[2] published a study of how residency programs affect the financial performance of the Veterans Affairs Medical Centers which house them. The purposes of the study were (1) to analyze the consequences, for individual VAMC performance, of reducing or eliminating residency programs throughout the VA health care system; and (2) to estimate the underlying production function in teaching and nonteaching VA hospitals and the marginal productivity of residents.

The study showed that the financial performance of teaching hospitals within the VA health care system was no worse than that of nonteaching hospitals even without a teaching subsidy. In addition, the study showed that as staff size increases, the indirect cost of medical education decreases. Therefore, the study concluded, the future downsizing of residency programs would financially benefit smaller-staffed hospitals and larger-staffed facilities would lose.

Family Medicine Residencies

In their cost-benefit study of California family practice residencies, Barnett et. al. [3] stated that the cost effectiveness of primary care residencies needs to be demonstrated to health care payers because cost studies alone generally show that family practice residencies need to be heavily subsidized. This occurs because primary care simply is not costly enough to third party payers. The same study reveals the arbitrary nature of cost allocation methodology by comparing reports to Medicare with reports to the state emanating from the same program or facility.

The Barnett study uses a methodology known as "joint-products cost analysis," which is heavily based on assumptions and estimates, to assess the pure cost of education, i.e., that portion of the cost not directly related to the provision of medical services. Thus, how costs are allocated (often arbitrarily) can make a program appear to be cost effective or not cost effective.

In a 1989 study, Boddie et. al. [4] described how a family practice residency in financial crisis was rescued. The study recommended that, in order to maintain its financial viability, a residency program must (1) be an integral part of the institution, (2) utilize faculty practice plans which address the institution's mission and (3) encourage ongoing collaboration between administration and staff to achieve increased productivity without jeopardizing accreditation.

In 1992, Kahn et. al.[5] reported on a financial analysis of a family practice residency threatened with closure. The report concluded that grants and graduate medical reimbursement through Medicare were essential to making residencies cost effective.

By 1995, there were two published studies of family practice residencies in community based settings. The study by Casey et. al. [6] concluded that expenses from family practice residencies are generally offset by the residency revenue and that the programs can be justified by the nonfinancial benefit of providing primary care physicians to the community. Zweifler[7], in a study of a family practice residency at a Fresno, California, community center, found a net cost of $7,700 per resident, which is lower than the net cost in inpatient settings. He further suggests that the costs of these community-based residencies should be shared with agencies interested in medical education, providing physicians to underserved areas and/or increasing the supply of primary care physicians.

Osteopathic Medicine Residencies

In their "Primer on Graduate Medical Education Financing," Carl and Knaus[8] suggest maximizing reimbursement to residencies by:

(1) capitalizing on reimbursble rotations,
(2) obtaining affiliation agreements from out-of-house rotations,
(3) signing on as many residents as

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possible,
(4) developing hospital-owned or operated ambulatory care rotations,
(5) monitoring legislative activity affecting reimbursement closely, and
(6) quantifying the non-financial benefits of residency programs.

Residencies in General Dentistry

At a symposium held in 1991, the American Association of Dental Schools (AADS) looked at a required postdoctoral year in general dentistry for all dental graduates[9]. At that time, the United States Public Health Service had increased funding to these programs. Eventually, however, federal funding to these programs is to be gradually phased out and the programs required to become financially self-sufficient.

In a report on the San Antonio model[10], Montgomery et. al. suggested that residency program financing be considered from four aspects: patient care activity, program funding, program income and financial management. In the San Antonio model, the following suggestions are made to increase the productivity of each resident:

1) Change the patient demographics to achieve a patient mix that consumes less of a resident's time per procedure
2) Raise fees
3) Provide production incentives to the resident
4) Extend clinic hours
5) Use faculty as income generators (faculty practice plan)
6) Improve patient scheduling
7) Decrease patient cancellations
8) Increase the number of residents

The same report made several suggestions on lowering program expenditures. These range from the least tolerable with a greater impact on program functions — such as reducing salaried positions and lowering indirect costs — to the more tolerable such as lowering the direct costs related to technology, and various miscellaneous program costs.

Brantley[11], reporting on the North Carolina model, made the following recommendations with regard to lowering the costs and increasing the income related to residencies:

1. Provide production incentives
2. Increase management efficiencies
3. Increase institutional subsidies
4. Increase income from external sources such as clinical research grants and continuing education

In summarizing the 1991 symposium, Jolly et. al. [12] listed the financial strategies necessary to fund a postdoctoral year in general dentistry:

1. Increase patient care income by
   a) effective patient scheduling
   b) incentive programs
   c) income monitoring
   d) adding a second-year resident
2. Increase income by faculty and other providers by
   a) faculty practice
   b) service clinics which accept referrals from specialty clinics and the community
3. Increase extramural patient income
4. Achieve management economies and efficiencies such as
   a) improved financial accounting
   b) better human resource management
5. Other methods such as
   a) clinical research
   b) foundation grants for patient care
   c) continuing education
   d) alumni endowment

Cost Study of a Vision Therapy Residency Program

The Vision Therapy Residency Program has been in existence at SUNY College of Optometry since 1975[13]. The program currently provides for four residents per year and results in both added costs and added income for the institution. As part of an educational program for the chief resident, during the 1992-93 academic year, the elements that contribute to both income and expenses for the residency program were identified and analyzed.

The purpose of the activity was to give the chief resident experience in the process of gathering and analyzing cost elements rather than providing a comprehensive analysis of the program. It is instructive, however, to look at the findings since the literature is devoid of any similar study in optometry.

The data gathering involved interaction of the chief resident with various institutional and clinical administrators. Eight major cost areas with a total of twenty cost items were identified. Clinical revenue generated by the residents was also considered. The full study is in preparation by Heiberger and Hong.

The following expense elements were identified:

- *Faculty salary offset:* that portion of faculty salaries attributable to faculty time spent teaching in the program
- *Resident salaries:* direct compensation paid to residents
- *Fringe benefits:* the cost of benefits, calculated by formula, for residents, administrators and faculty, all of whom are on state-supported lines
- *Equipment - Startup:* cost of additional equipment required for the vision therapy clinic in order to set up the program initially
- *Equipment maintenance:* annual cost of maintaining equipment primarily used by residents
- *Travel:* consists of support of residents' travel to meetings and conferences
- *Honoraria:* payments to outside lecturers who participated in the program
- *Administrator salary offset:* that portion of administrator salaries attributable to administration of the program

In addition to gathering data on the expense items, consideration was given to revenue generated by the program. The following revenue categories were identified:

- *Defrayed cost of teaching:* the savings realized by substituting residents for clinical faculty in the professional program
- *Students under resident supervision:* the clinical income generated by the professional students while being supervised by residents
- *Direct patient care:* the clinical income generated by residents in direct care of clinical patients
- *Ophthalmic dispensing:* revenue from dispensing fees and materials from patients seen as the result of resident participation in direct care and in student supervision

Based on the allocations to the expense and revenue categories described above, as determined by the chief resident, program revenue amounted to 52% of program expenses. When the revenue and expense categories were adjusted to reflect actual rather than "in-kind" revenue and expenses, the program revenue amounted to 83% of program expenses. Thus, it can be said that the cost to the institutional financial support for the program is somewhere between 17% and 48% depending upon how revenue and expenses are allocated.

During the course of the study, it also became apparent that there were a number of non-financial benefits that accrued to the institution as a result of having supported the program for some 20 years. These intangible benefits can be summarized as:

- *Opportunity for staff to teach.* Individual faculty had a chance to expand their role as didactic and/or clinical instructors.
- *Professional/intellectual stimulation.* Faculty became more intellectually challenged since the program requires an advanced level of instruction in vision therapy, both clinically and didactically.
- *Increased efficiency of patient care.* Having a full-time "house staff" in the vision therapy clinics provides for greater continuity in patient care and more flexibility in clinical scheduling.
- *Collaboration with other disciplines.* The program acted as a catalyst for interaction with other disciplines both in the didactic and patient care portions of the program.
- *Future faculty development.* Residency training is quickly becoming a core requirement for appointments to faculty at schools and colleges of optometry.
- *Enhanced prestige.* Health care teaching institutions with residency programs are regarded as providing superior patient care.
- *Improved planning and management.* The development and implementation of a residency program within a clinical department causes that department to reexamine its goals, objectives and operations.

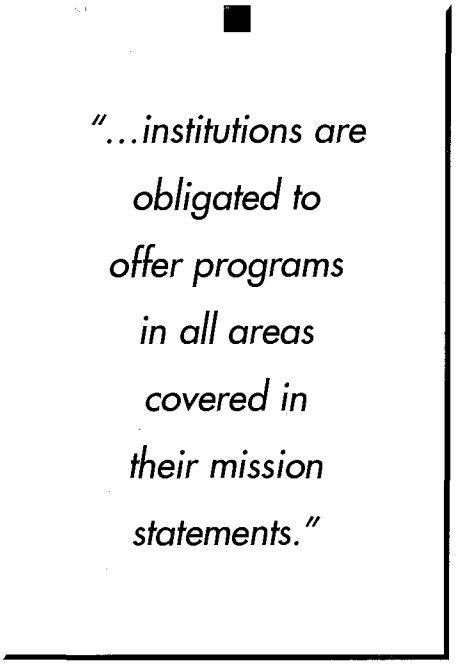
Factors to Consider in Deciding To Initiate a Residency Program

The first consideration in deciding whether or not to initiate a specific residency program is whether the program fits the host institution's mission and goals. A residency program should enhance other programs of the institution sufficiently to justify the institutional resources that need to be committed to it.

There should be a thorough examination of the need for the program. Are there sufficient opportunities for individuals trained in the specific skills that the residency program is geared to develop? Are there a sufficient number of optometric graduates interested in the residency program's area(s) of concentration?

The cost and revenue elements related to the residency program should, to the extent possible, be identified and estimated. While it is not necessary for residency costs to be totally offset by residency revenue, it is important to have a good understanding of what the magnitude of the costs will be before an institution commits to sponsoring a residency program. This also provides a basis for continual monitoring of these cost and revenue elements.

Finally, there should be a careful analysis of the non-financial or intangible benefits that would accrue to the sponsoring institution by virtue of its support of the residency program. These benefits, some of which were described earlier, may well justify a considerable institutional investment in the program.



The process whereby an institution considers the development and support of residency programs should not differ from the process, or criteria, that an institution uses to consider the development and support of its other programs. If, in fact, postgraduate clinical education is part of an institution's mission, a residency program should be judged by the same standards as those used to consider a professional program or a program of continuing education. This does not mean that all programs should be equally subsidized. It does mean, however, that institutions are obligated to offer programs in all areas covered in their mission statements.

Another important consideration in initiating a residency program is program evaluation. The first step in this process is a clear statement of program mission, goals, objectives and outcome measures. This should be followed by the development of an evaluation plan which includes both formative and summative elements. Formative elements help to guide the program in making "mid-course" corrections. Summative elements recap a program's accomplishments or lack thereof. Finally, the evaluation scheme properly should include a look at the program's finances. ■

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Changes in the Department of Veterans Affairs and Their Implications for Optometric Education

Charles F. Mullen, O.D.

In the coming years, the veterans' health care system will be affected by powerful societal and health care industry dynamics. These factors will influence the manner in which the VA accomplishes its mission and they provide the context in which it must operate.

My discussion of the future of the veterans' health care system is based on the following assumptions:

- The role of the federal government in American society will continue to be reevaluated, and competition for federal government funding will become even more intense.
- Most health care in the United States will continue to be provided by the private sector.
- There will continue to be marked turmoil among and consolidation of medical groups, hospitals, health maintenance organizations, and other elements of the private sector.
- Managed care within integrated delivery systems will become the most common mode of health care delivery in the United States.
- Medical and scientific information will continue to grow at an astonishing rate.
- Technological innovations will continue to revolutionize clinical practice. In addition, the trend of providing care in nonhospital settings will continue, and even accelerate, as concern about health care costs continues.
- Advances in information and communication technology, and imaging systems in particular, will open many new opportunities for improving the delivery of health care.
- Integrated information systems will be the key to success for future health care systems.
- Nonphysician providers will be increasingly used in health care systems of the future.
- Health care organizations will be increasingly expected to prevent disease and promote community wellness, in addition to treating individual cases of illness.
- There will be increased demand for accountability in health care and increased emphasis on health care outcomes and measurements.
- While the rate of increase of health care costs has diminished in recent years, health care costs will continue to be the major driving force in the industry. Nonetheless, quality of care and customer service will become more important issues.
- The veteran population eligible for care at VA facilities will continue to age and decrease. However, the need for both acute and long-term care services for this aging population will rise disproportionately to the decrease in users due to the greater health care needs associated with aging.
- In addition to the "macro" issues, there will be local and regional dynamics impacting individual VA facilities and networks.

In envisioning the veterans' health care system of the 21st century, it is assumed that the future is unpredictable and that the VA must be flexible enough to rapidly respond to unforeseen circumstances.

The mission of the veterans' health care system is to serve the needs of America's veterans by providing specialized care for service-connected veterans, primary care, and related medical and social support services.

To accomplish its mission, the Veterans Health Administration (VHA) should be a comprehensive, integrated health care system that provides excellence in health care value, excellence in service as defined by its customers, and excellence in education and research. It also should be an organization characterized by exceptional accountability.

There are numerous changes underway in the VA which specifically affect optometric education and they present both challenges and opportunities — opportunities for significant gains if optometric institutions are proactive and significant losses if they are passive. The VA is currently:

- Reengineering the operational and management structure of the veterans health care system.
- Implementing the Veterans Integrated Service Network (VISN) management structure. This new structure has resulted in a shift of operational control and some policy development to the local level.
- Management Assistance Councils consisting of external advisors are either operational or being established in all Networks.
- Restructuring VHA headquarters.
- Implementing multidisciplinary "service line" rather than discipline-specific clinical care in recognition of the transdimensional nature of health care today. Optometry and ophthalmology have been placed in the HQ Primary and Ambulatory Care Strategic Health Group forming the eye care program. This is likely to be emulated in VA field facilities.
- Standardizing clinical processes (e.g., with nationally developed clinical guidelines) and delegating clinical care responsibility to nonphysician providers.
- Exploring ways of improving the accessibility, quality, and cost-effec-

At the time this article was written, Dr. Mullen was director of the Optometry Service, Veterans Health Administration. The article is based on the VA's new strategic plan entitled Prescription for Change. *Dr. Mullen is currently the president of the Illinois College of Optometry.*

tiveness of VA's special emphasis programs, e.g., VICTORS.
• Increasing the proportion of the VA's work force providing primary care.
• Developing tailored training/retraining programs in primary care.
• Reducing the variation in professional staffing that exists among facilities and services having similar missions and work loads.

Although we may experience reductions at certain facilities, overall continued growth in optometry is projected. Since 1990, VA Optometry Service has added 86 FTEE staff and residents. This growth has facilitated our involvement in the following activities:
• Increased sharing of activities with academic affiliates and the Department of Defense.
• Promoting a VHA culture of ongoing quality improvement that is predicated on providing health care value.
• Establishing a VA clinical "Centers of Excellence" program to celebrate and disseminate best practices and to foster studies that identify organizational characteristics that lead to performance excellence.
• Promulgating customer service standards and ensuring that they are known by both staff and patients, e.g., 30 days maximum wait for eye care.
• Decreasing waiting times for appointments. Although reduced from over 100 days in 1990 to current level of 47, it still is far from acceptable.
• Ensuring that VHA's educational offerings emphasize areas of greatest societal need and are responsive to the needs of veterans today and in the future.
• Convening Residency Realignment Advisory Committees for physicians and other health professionals to provide guidance in ensuring the VA's postgraduate training programs are responsive to the needs of the VA and the nation. Possible overall reduction in optometry positions as a result of general downsizing. Also, the lack of formal requirements for optometric residency training increases the vulnerability of the program. Most likely there will be a reduction in multiple resident placements.
• Increasing the proportion of trainees in primary care disciplines.
• VA facilities are reevaluating their affiliation(s) in light of VHA's restructuring and vision of the "new VA," and the present educational role of VA. Affiliation agreements should defend the prerogatives of VA, control the use of VA resources, and protect the interests of VA patients.
• Initiating review and renegotiation of all academic affiliation agreements.
• Reassessing the role and function of Deans Committees in light of today's changed health educational environment and effect changes where needed.
• Academic affiliations and residents are likely to be negotiated on a Network basis.
• Clinical credentialing and privileging will probably be conducted on a Network basis.

The VA's Current Contributions To Optometric Education

There are currently 155 academic affiliation agreements at 103 facilities. Five hundred thirty optometry students annually rotate through VA facilities. Seventy-five residents and 9 WOC are currently funded at 44 program sites. A significant increase in requests for without compensation placements (WOC) has been noted. There is a potential of 400,000 annual clinical teaching encounters. Research opportunities abound with currently over 7.0 million in funded optometric research.

There is a corps of well-qualified clinical preceptors with some VA optometrists released to teach at affiliates. VA clinicians are also active contributors to the literature and national continuing education programs.

What Can Individual Schools And Colleges Do to Preserve VA Affiliations?

• Above all, be an active partner.
• Assist VA facilities with Quality Improvement activities.
• Assist VA facilities in improving staff productivity and reducing waiting times for appointments. Low productivity will likely result in loss of residency funding and possibly staff FTEE. Chronic long waiting times could result in local frustration and contracting out to commercial providers. This is already a reality in one Network.
• Seek appointment of school-based optometric faculty as consultants at VA facilities.
• Enter into contractual "sharing" arrangements, e.g., VICTORS, Eye Care Centers of Excellence.
• Seek appointments to Network Management Assistance Councils. Already, Drs. Haffner, Hopping, and Walls have been appointed and I have received positive feedback on their contributions.
• Increase awareness of VA affiliations by publicizing your institution's activities.
• Seek new academic affiliations within your Network.
• Prepare thoroughly for COE accreditation visits and address problems before the COE visits. Less than full accreditation will likely result in loss of VA funding.
• Seek cooperative research projects with VA affiliates.
• Consider WOC residency programs as a means to initiate new programs.
• Understand the new JCAHO accreditation standards and survey process and their implications to optometry.

What Can ASCO Do Collectively?

ASCO should implement the recommendations agreed to in the 1992 AOA/ASCO/NAVAO Strategic Plan. For example:
1. In cooperation with the VA, assist in the development of and implementation of a system wide Total Quality Improvement Program.
2. Improve management of affiliations programs by: participation on Network Management Assistance Councils. (Originally the Deans' Committees.)
3. Stimulate research proposals in cooperation with VA medical centers.
4. Review faculty appointment procedures and benefits for VA preceptors and enhance them wherever permitted by institutional governance.
5. Residency expansion in VA should be carefully managed to assure well-balanced clinical educational programs nationwide.
6. ASCO should endeavor to publicly promote its relationship with the VA, increasing positive support of VA activities and accomplishments and increasing the public and the government's knowledge of optometry.
7. Monitor affiliations through the ASCO Committee on Residencies and Externships and through COE reports.

This is a time of great change in the VA. It presents many challenges, but also many opportunities. The shift of control to the Networks (local) level makes it more important than ever that every affiliated optometric institution be an active partner among its VA affiliated facilities and Network leadership. There is the possibility for significant gains if there is local initiative and likewise the possibility for significant losses if the schools and college of optometry are inactive. ■

Developing and Maintaining Excellence In an Optometry Residency Program

James D. Colgain, O.D.

First and foremost, excellence starts with you, the residency directors, coordinators and educators. Modeling and mentoring speaks louder than words, books, papers, lectures or any accreditation process or certificate. Excellence does not begin on the first day of the residency; it begins with the first contact with the applicants. From the beginning, with the first phone call or letter, do all of your contacts model the professionalism and excellence you want to see in your future colleagues?

Specifically, do your resident applicants receive written responses to their inquires in a reasonable time period? Are they given the materials and access to your practice that would allow them to make an informed decision concerning a year of their professional life? After the resident selection process is completed, do you as the director, and your current resident, plan together to make the transition of the new resident as smooth and seamless as possible? Do you have a resident handbook, written procedures, assistance with housing, formal orientation, and specific checklist with timelines for the resident ?

I challenge you to consider that the education of the residents begins with how well they are treated and prepared before they arrive on July 1. To improve this process, I encourage you to ask them for candid feedback on their orientation to the residency, from the day they were selected through the first month of their residency. If you delay seeking this information until the exit interview, it will be forgotten by the resident and delay the implementation of critical improvements to your program.

Being the Best Teacher

Secondly, excellence depends on the style of teacher you are to the resident. Operationally, I would classify teaching styles into three groups:

- Those that ask and answer their own questions, providing little opportunity for residents to wrestle with answers;
- Those that are asked a question by the resident and then answer the question immediately, instead of nurturing the inquisitiveness, curiosity and resourcefulness of the resident; and
- Those that encourage residents to ask and then to discover the answers to their own questions.

Some teaching models of intimidation — and in some cases humiliation of an intern or resident in front of colleagues — for poor answers to questions, are not models I would want optometry to emulate as we prepare our future residents to survive in a team-oriented atmosphere.

Excellence in optometric education should follow the model that is stated succinctly as, "See one, do one, teach one." Too often, as residency educators, we allow our residents to see one, see one and see one again. There is a place for looking in the consultation tube or over the shoulder of the experienced practitioner, but if that is not soon followed by do one, and teach one, residents may leave our program with little more than a living "video" of the procedures and skills that should have been refined during residency education.

Being the Best Resource To Your Resident

Excellence is sustained not only by being the best teacher but also by being the best resource to the resident. Total quality improvement in teachers should begin by sharing with other teachers to learn and grow from one another's ideas, successes and "best practices." The idea of a lifelong learner is key to sustaining excellence, not only in your profession, but also in your personal growth. Life-long learners keep up with journals, regularly communicate with colleagues and continually seek to improve not only their practice style but their expertise and command of new technologies and procedures.

Assuring Success by Selecting the Best Resident

Success is being the best teacher and resource, but it is also selecting the best resident for your program. By best, I do not mean convincing the number one candidate, among the 200 or so residency applicants, that your residency is best. In my opinion, it is selecting the "best fit," so that the future resident and the residency site coalesce in their mutual goals and direction.

We use two methods to assure the best fit in our residency, behavioral interviewing and complete access to information about the residency. We

At the time this article was written, Dr. Colgain was chief of optometry and manager of eye care services for Kaiser Permanente's Mid-Atlantic Region where he managed the professional, optical and contact lens care. He is currently the regional general manager for TLC - The Laser Center, Inc., in Bethesda, Maryland.

provide as much information as possible to candidates prior to and during the interview. That means we provide the applicants telephone and personal access to our current residents, handouts and information on our health plan, CVs of our teachers, the written goals and objectives of our residency, compensation and benefits information and the ability to review the monthly assessment reports of our current or past residents.

This helps to alleviate the "surprise factor" that occurs in some training programs during the second and third months when a resident comes to the director and says: "I thought that this was an (ocular disease, low vision) based residency. When will I begin to see those patients?

Behavioral Interviewing

The other aspect of the selection process is the interview. We use a behavioral interviewing process. Behavioral interviewing is a process developed to identify the successful skill traits specific to a particular position and then to formulate questions around those skill sets as the basis for the interview.

Our residency team, including the six doctors involved with the resident, filled out a multiple choice instrument with over 300 questions concerning the job skill requirements and necessary interpersonal and intellectual skills that we scored as most to least important. After the skill analyzer was completed by all six members, it was scored, and ten skills were identified by the tests as necessary for the most successful resident. After multiple votes and some discussion, this list was narrowed down to six critical skills or traits for a successful resident. In our case they included:

- Ability to work independently
- Written communication
- Oral communication
- Ability to follow procedures and directions
- Teamwork
- Flexibility

The skills were then linked to 10 to 12 sample questions that were generic, but that enabled the interviewer to tailor the question to their particular position, without losing the insight into the critical skill. Since we narrowed our list down to the six traits, each resident was asked at least 12 questions, two for each trait. *The basis for behavioral interviewing is that past performance is the most reliable predictor of future performance, especially when centered around the critical job traits determined as necessary for success in that position.*

This also keeps all interviews focused, fair, defensible and with a measurable outcome. Soft factors such as motivation, knowledge of the resident and hard factors such as grades, external rotations, board scores, essays and professional recommendations are all considered in the selection of the resident. Behavioral interviewing is not perfect, but we have found it a superior system to the often haphazard way that interviews are conducted.

Curriculum Design

After selecting the right resident and being the best teacher, you need to turn your attention to creating the best curriculum. Primarily, curriculum design needs to be current with COE guidelines.

The residency program belongs to the school or college of optometry. The program is hosted at your site and the curriculum delivered through your faculty and patients. Therefore, the school should have regular and specific input to improving the residency. This alignment should not be an option and neither should the involvement of the optometry school in the residency. The problems in this era of contracting funding are how to keep this input funded, both at the schools and in the residencies.

The residency curriculum should be reevaluated at least every two years to assure it is current with the latest training in schools of optometry. It is my opinion, as you would expect from an individual in managed care, that we should all be preparing our residents not only to survive in the future environment, but to thrive. That means teaching the use of technicians, understanding capitation, working under protocols and guidelines, laser vision correction and becoming a team member in the circle of vision care.

In addition, since many residents have had a variety of experiences both in their pre-optometry education and work experiences, as well as in their external fourth year rotations, we must be flexible to tailor our programs to the residents, while still meeting the criteria of COE. It is our experience that some resident applicants have been in practice for between three and 15 years. These residents, reinvesting in their education after considerable patient care experiences, need a tailored optometry residency. Would anyone debate that the clinical portion of the program should be tailored to recognize the experiences of the resident who has 10 years of practice, versus the recently licensed graduate from an optometry school? The challenge is how to tailor a program and honor the mission, goals and objectives of the program.

Graduated Levels of Clinical Management

The next step in maintaining excellence is to assure that the residents have graduated levels of clinical training as they progress throughout the program. The program coordinators should set the standard for eventual independent clinical management decisions and procedures and performance with the widest diversity of diagnosis. As Dr.Tim Messer, O.D., of the VA in Tucson, says to his residents, they should with each diagnosis:

- Say what they see
- Tell what they would do
- Tell why they would do it

These statements should be answered by all residents with a diminishing dependence on the expertise of the clinical instructor. Dr. Messer and I also agree that diagnostic and clinical procedures with minimal to no inherent risk for adverse outcome, such as scleral depression, dilation and irrigation, A-Scans, corneal topography and gonioscopy, can be performed on consenting patients during the early days of the program. Then, when any of these procedures are definitely indicated by a presenting case, residents are confident and competent in their performance.

Resources for the Residents

In an era of contracting budgets and revenues, the thought of providing additional resources for the resident can be overwhelming. I would like to suggest some resources we have found at Kaiser Permanente that have expanded the experience and curriculum of our residents. They include:

Grants - From suppliers, pharmaceutical and lens companies for education, training and travel.

Other residents - having a second resident and meeting together with residents from other programs in the area has been both a morale boost and spread our cost over a greater base.

Private practitioners - We have found a number of private, specialty based practitioners who have willingly accepted the residents into their practices, adding to the residents' experiences.

ILAMO Library of the AOA - 314-991-4100, this has been a resource for literature searches, audiovisuals, articles and books without leaving the medical center.

Local optometry meetings - all the local societies allow the resident to attend any meeting, on a space available basis, for the purpose of education and camaraderie, at no cost.

National meetings - many national meetings, within and outside optometry, have allowed our residents to attend, at no charge, when a letter has been sent requesting this from the department chief (National Managed Care Congress, National Vision Care Congress, National Diabetes Association).

Another way of promoting excellence within declining budgets is other compensated work in your organization (on-call staff optometrist), utilizing used equipment to staff the residents' room and calling on others in your circle of care to assist in the teaching of the residents (physicians, administrators, health care leaders).

Stature of the Program in the Sponsoring Institution

This is a continual process that only pays dividends when the tough decisions of budgets and space are made and the institution fully recognizes the value of the residents to the patient base and staff of the hospital or clinic.

The residency's stature in the institution begins with the orientation and integration of the residents. Do they meet the other providers in the center, the administrators, head physician, and the other leaders in the program? Are the efforts and accomplishments of the residents promoted in publications and communication to the staff and providers in your institution? Are the residents' posters and publications recognized? Do the residents lecture the staff and physicians? To the degree that the resident goals and objectives are aligned with the institution, is this publicized and promoted?

The Residency Director As an Advocate for the Resident's Career

The director should be the residents' strongest career advocate. Successful graduates help the program to attract motivated residents. They set a high standard for performance and, by their success in the profession, send a subtle message that if you apply to this residency, expect to work and strive to be your best.

Practical ways the director can help residents in their careers:

■

"The basis for behavioral interviewing is that past performance is the most reliable predictor of future performance, especially when centered around the critical job traits determined as necessary for success in that position."

- Review and assist them in developing the curriculum vitae.
- Facilitate interviews, whenever possible, for the resident, particularly at national meetings, if they plan on moving to another part of the country.
- Be willing to review and advise the resident on contracts and negotiation with a future practice or employer (without becoming legally liable of course).
- Stay current with the latest salaries and benefits for resident graduates and offer advice when asked on this delicate subject. New graduates and residents are always at a disadvantage unless they have you in their corner.
- Be a networking advocate for the resident, anticipating and exploring position vacancies and assessing in marrying the residents goals and objectives with practices and opportunities that you may know in the ophthalmic community.

Feedback Leading to Excellence

In the era of TQM, excellent programs need to continually improve if they are to maintain the leading edge in optometric education. Data on outcomes, starting with measuring the "Product" is critical to the evaluation of the program. I suggest the following minimum list of measures for feedback to your residency.

- Regular intervals for evaluation of the resident in the program, perhaps quarterly.
- Exit evaluation and feedback from the resident on the program and how it met its goals and objectives. A third party, such as the sponsoring optometry institution, is our choice for this process.
- Surveying past residents to determine the utilization of the skills developed in the residency and any gaps that could lead to greater success.
- Tracking of residents in their careers using parameters such as salary, AOA and AAO involvement, publications, TPA use and satisfaction with the profession.
- Use of COE guidelines for feedback.

In conclusion, I want to emphasize that all of us want to be associated with programs of excellence. It has been my goal during this presentation to stimulate discussion that would lead to improvements in all of our programs.

Acknowledgements

I would like to gratefully acknowledge the contributions and review of this article by Timothy Messer, O.D., M.S., of the Tucson VA Medical Center.

(Continued from page 79)

Varilux Sponsors Sixth Optometry Super Bowl

Gregg Steele, a fourth year student at The University of Alabama at Birmingham, School of Optometry, took top honors and $1,000 at this year's Optometry Super Bowl. In addition, the coveted crystal trophy will be placed at UAB until the next OSB. Derek Allmer, Pacific University College of Optometry, was awarded $500,000 for second place, while Illinois College of Optometry's Jeff Johnson took home the third place prize of $250.00

Sponsored by Varilux, a member of Essilor Lenses, the Optometry Super Bowl attracted contestants from 18 schools and colleges of optometry from the United States and Canada.

Vistakon Gets New President, Receives Award from APHA

James M. Callahan was named president of Vistakon, a division of Johnson & Johnson Vision Products, Inc. Callahan succeeds Gary K. Kunkle, who recently resigned. Callahan comes to Vistakon from Ciba-Ceigy, where he worked for 10 years. Callahan will report directly to Bernard W. Walsh, J & J group chairman.

In other Vistakon news, the Vision Care Section of the American Public Health Association gave a special award to Dr. Stanley J. Yamane and to Vistakon for supporting APHA. Dr. Lester Caplan of the Vision Care Section praised Dr. Yamane, Vistakon's vice president of professional affairs, and Vistakon, for their "commitment to promoting the importance of vision care and for their history of support for public health and the eyecare professions."

CIBA Establishes China's Second School of Optometry

CIBA Vision Corporation announced a $500,000 commitment to help establish a school of optometry at Sun Yat-sen University of Medical Sciences in Guangzhou, Guangdong Province, China. This will be the second school of optometry in China. CIBA's contribution will create a five-year optometry program, open to 30 students per class. The program will consist of three years of general medical studies, followed by two years of clinical education in primary eyecare, refraction, contact lenses, diagnostic, and therapeutic pharmaceuticals for ocular disease management.

"Establishing this program at such a prestigious medical and ophthalmology university represents the acknowledgment among eyecare experts in China of the need to expand the base of qualified primary eyecare professionals to serve the needs of the general public," said George Woo, director of the China Education Program for CIBA Vision.

Bausch & Lomb Announces Student Grant Recipients

The first recipients of Bausch & Lomb's Competing for the Future Student Grant program were provided the opportunity to interact with leading researchers and clinicians in contact lens care worldwide. John C. Derickson, a fourth year student at Nova Southeastern University College of Optometry; Brett D. Ringger, a third-year student at Northeastern State University College of Optometry; and Alan B. Shnay, a third-year student at the Illinois College of Optometry, were each awarded $1,000 and an all-expenses paid trip to B & L's European Research Symposium on Contact Lenses.

"Bausch & Lomb has always maintained a strong commitment to eye care professionals. This includes supporting practitioners of tomorrow," said William T. Reindel, O.D., B & L's director, Professional Market Development. This program challenged students to focus on what it takes to be successful in tomorrow's practice via a Contact Lens Practice Development Plan.

Corning Guide Explains Glass Chemtempering Process

A new technical bulleting and laminated summary card highlighting the three chemical tempering options used to strengthen glass lenses is now available from Corning Optical Products. The described processes include the conventional 16-hour process and a two-hour chemtempering process — both for use with Corning photochromic glass lenses — and a 16-hour process exclusively for all Corning White Crown and fixed tint lenses. For each process, the guide explains the chemicals used, temperature ranges of the solutions, appropriate lenses for each salt bath, and likely troubleshooting scenarios.

For a free copy of the bulletin (OPO-367) and one-page reference guide (OPO-368) write Corning Optical Products, HP-CB-5-1, Corning, NY 14831.

WJ Survey Shows Patient Interest in UV Protection

Nine out of 10 patients are interested in purchasing soft contact lenses with UV protection, according to a Wesley Jessen Corporation survey of 300 soft contact lens wearers. While UV protection is of interest to patients, practitioners have not yet begun to educate their patients about soft lenses with UV protection, the survey found. Only 3% of the survey respondents said that the topic of UV contact lenses was discussed with their doctor. In addition, only 9% reported knowing soft contact lenses with UV protection exist. When asked if their level of purchase interest would change if UV lenses were priced 10% higher than the lenses they currently wear, over half of the respondents said that their level of interest would remain unchanged, according to Dwight H. Akerman, O.D., WJ's director of professional services.

ABSTRACTS

An Active-Learning Approach to Basic Clinical Skills. Curry RH, Makoul G. Acad Med 71:41-44, 1996.

The authors take a novel approach to teaching clinical skills. They began by taking issue with the traditional premise that repetitive practice using a structured database is only a necessary, but not necessarily sufficient, condition for the development of interns.

Specifically, they present a structure for teaching clinical skills that would incorporate an active learner-centered approach and integrate development of communication, physical examination, and decision-making skills. The specific question asked was: "As active-learning models become the norm in basic medical science curricula, is it not just as important, and as appropriate, to bring the same approaches to clinical skills teaching?"

The researchers allowed undergraduates at the Northwestern University Medical School to choose their alternative approach or continue in the traditional tract. After two years, comparisons were made between the groups. A survey instrument quantified the enthusiastic acceptance for the active-learning curriculum. In addition, a 46-item multiple-choice test administered to both groups revealed similar results. Finally, the active-learning group was significantly more adept at constructing a problem-list and accomplishing fundamental communication tasks.

Specifically, the authors took the experimental group and supervised them more closely, gave greater feedback and generally worked more closely with them throughout the training period. Since the students were free to choose the alternative or the traditional curriculum, comparisons were meaningful. The authors concluded that their curriculum design encouraging critical thinking is more consistent with the development of clinical expertise than traditional design.

Reviewer: Dr. Leo Semes
University of Alabama at Birmingham
School of Optometry

Simulated Patients for the Practical Examination of Medical Students: Intentions, Procedures and Experiences. Baerheim A, Malterud K. Medical Education 29:410- 413, 1995.

This paper presents the intentions, procedures and experiences related to the use of trained simulated patients to evaluate undergraduate medical students at the University of Bergen in Norway. Primary school teachers were trained to role-play a specific medical problem and were examined by the medical students being evaluated. These simulated patients were presented to the students along with authentic patients in such a way that the students did not know that some of their students were role-playing. The paper discusses the training of the simulants, field notes from the process, observations during the examinations, written evaluations from the students and feedback from the simulants. The authors conclude that the training of simulants is not difficult and that the use of simulated patients in an evaluation process has merit.

The use of simulated clinical experiences is gaining favor in optometric education probably due to the competitive pressures of managed care on our teaching clinics and the need for more predictable patient care experiences. Simulated patient care can take many forms from computer-driven interactive encounters to the use of role-playing, not just for the evaluation of our students but also as a means of enhancing their clinical education.

Reviewer: Dr. James E. Paramore
The Michigan College of Optometry
Ferris State University

Strategies for Integrating Computer-based Activities into Your Educational Environment: A Practical Guide. Miller JG, Wolf FM. Journal of American Medical Informatics Association 3(2), 1996.

This paper articulates nine general strategies used at the University of Michigan Medical Center to implement computer-based educational activities. The article describes the specific activities at the University of Michigan. One of the goals of these activities was to decrease the number of hours a student spent in lecture, and to increase the number of hours a student spent in small group and independent problem solving activities.

Nearly 100 computers are available for use by medical students (170 per class) at two major computer laboratories and five smaller satellite labs, which are open until midnight during the week and staffed by a computer literate person at a help desk. The computers, mostly Macintosh-based, are replaced on a 5-year cycle, with older computers being used for word-processing, e-mail, and other purposes. Lecture halls have been renovated to provide video projection and computer connectivity. Courseware is mounted on a Novell Netware-based server. Network versions of software are preferred because of programming and site-licensing constraints. For non-network versions of software, 10-20 copies of each program are required for the 170 students per class.

Programs which allow students to test their knowledge are the most popular. Pure text-based programs are often rejected by students who see no advantage over print materials. In general, off-the-shelf software is preferred to the development of programs by faculty. Even considering the cost of licensing software for this number of users, it is often less expensive compared to development time.

Abstracts
(Continued from page 96)

Incoming medical students are given a training session on basic skills and systems. Students are required to conduct MEDLINE searches in their first year. In their second year, workshops are given to introduce students to ILIAD, a system used in patient simulation and consultation modes. Third year students are required to complete at least 12 cases using the ILIAD system. At least one physician is always present on site during the presentation of clinical systems or exercises. Senior students are hired to assist lower level students.

The description of computer-assisted instruction, along with general principles to keep in mind when utilizing this modality, provide a valuable handbook for those interested in pursuing this use of technology. It is highly recommended that people interested in this topic obtain the entire article.

Guest Reviewer: Dr. Roger L. Boltz
University of Houston College of Optometry

The Visible Male: A Technical Report. Spitzer V, Ackerman MJ, Scherzinger AL, and Whitock D. Journal of the American Medical Informatics Association 3(2), 1996.

This article describes in great detail the process used to create the National Library of Medicine's Visible Human Male data set. The data set contains frontal radiographs, magnetic resonance images, computed tomography images, and images of serial anatomic sections, obtained by cryosectioning, of the the entire body of a single male cadaver. A view of each body location and viewing plane is available in each imaging modality, allowing the student/viewer to correlate the various imaging pictures with the actual anatomical appearance.

Most of the article describes the extraordinary care and diligence taken to select an appropriate cadaver, preserve the tissue from degradation, and ensure that all modalities imaged exactly the same structures from the same plane. This project, the imaging phase of which took several months to complete, appears well thought out and meticulously executed.

While most of the article is of little general use to those who would not attempt to duplicate these efforts, it does provide a high level of confidence that the images obtained are suitably referenced as to location and anatomical accuracy. What is of great interest to anyone working in the area of anatomy is the product itself. This data set, which is 15 gigabytes in size, is currently being used by more than 350 research, academic, and industrial groups in 25 countries. It is available from the National Library of Medicine's web site at *http://www.nlm.nih.gov.* This reviewer has examined these images and would strongly suggest they be viewed by anyone interested in anatomy.

Guest Reviewer: Dr. Roger L. Boltz
University of Houston College of Optometry

IN REVIEW

Contact Lens Optics & Lens Design (Second Edition). W.A. Douthwaite, Oxford:Butterworth-Heineman Ltd, 1995, 334 pages, 134 figures (b & w), 8 tables, 1 computer disk, $45.00.

Contact Lens Optics & Lens Design is a comprehensive contact lens optics text written by one of the foremost authorities on this subject, William Douthwaite. In the preface, he notes that he intends this book to be "Notes on the Optics of Contact Lenses for Busy Contact Lens Practitioners." For the most part, he achieves this goal. This text includes chapters on basic visual optics (i.e., lens power and vergence, accommodation, magnification, anisometropia, convergence), the contact lens (contact lens/fluid lens, thickness and power considerations), aspherical surfaces, measurement of the cornea, contact lens design, astigmatism and corneal toricity, miscellaneous features (bifocals, underwater lenses, low vision, aphakia, lenticulars), lens verification and computer programs.

There are several sections which are outstanding including the basic visual optics — particularly magnification, prism, and accommodation — the information on the contact lens-fluid lens and the interaction of lens design parameters. In the latter section, he expands upon the excellent work by Janet Stone and others on edge life and edge clearance calculations and what the practitioner needs to know about the peripheral lens design. In fact, there are frequent "bottom line" statements in bold for the clinician which are often beneficial although I did not totally agree with the statement that "a change of 0.05mm in the BOZD must be accompanied by a fluid lens power change of 0.25D" as this is only true in excessively flat corneal curvatures.

The section on optics pertaining to bifocal and toric lens designs is beneficial; the latter, in particular, was outstanding as the author explains the concepts pertaining to how back surface torics induce astigmatism and why correcting this error on the front surface provides a spherical power effect type of bitoric design. As the examples only pertain to PMMA lenses, a table of RGP materials and their refractive indices would be beneficial for these calculations. The section on the optics of instruments was both indicated and useful. Likewise, the figures used in this text were of excellent quality and assisted the reader in understanding the principles involved.

There were some areas in which this text may not be as beneficial, especially for the American practitioner. There is an over-emphasis on PMMA scleral lens designs. There were numerous examples in which these designs were used in design calculations to demonstrate power, thickness, and curvature relationships and this information is not beneficial when considering corneal designs. Likewise, although a section on the optics of expanding the keratometer range was present, it only described the use of minus lenses to expand the keratometer in the flatter direction (for scleral lens designs) as opposed to the more common need to expand the range in the steeper direction in keratoconus. Although the topic of corneal topography was briefly discussed, an entire chapter on the optics of computerized topography instrumentation would have been a very useful addition to this updated edition. Some of the terminology used — particularly for lens design parameters — is common to practitioners in the United Kingdom but not for U.S. practitioners. Quite often the author succeeds in not using excessively lengthy formulas which could be too complex for the busy practitioner; however, on some topics, including aspheric and lenticular designs, this was not the case.

The final chapter pertains to computer-assisted design information for those interested in using such a program to design contact lenses and also evaluate the interaction of the various parameters. This is a very useful adjunct to the other information in the text. Likewise, a diskette is provided which is extremely beneficial. It connects interactive problem/calculations pertaining to specific lens design calculations such as edge lift and tear lens thickness and other contact lens optics.

Reviewer: Dr. Edward Bennett
University of Missouri-St. Louis
School of Optometry

Clinical Ophthalmology — A Text and Colour Atlas. James L. Kennerley Bankes, New York:Churchill Livingstone, 1994, 138 pages, 159 figures, $39.95.

Dr. Bankes' vision in writing ***Clinical Ophthalmology*** was stated in the preface to the first edition (1982) where the author suggests that it is his hope that this book would meet the needs of medical students, general medical practitioners and those beginning a career in ophthalmology, and that "optometry students and optometrists have a need for a basic book in ophthalmology."

The author condensed a vast body of knowledge into a 138-page volume. However, the book has two shortcomings relative to optometry. The first is that the book, although updated in 1993, was originally designed in 1982. The second problem is that the author of this book is practicing in England. Optometry certainly has functioned differently in this country than in England even in 1982 although the scope has broadened since then.

Such a large body of knowledge is covered that the book suffers from over-simplification. Statements such as "artificial tears, as used for treating dry eyes, will be necessary for the rest of the patient's life," and that "the increase in myopia and astigma-

tism over weeks is 'characteristic' of keratoconus" are examples of over-simplification. The over-simplification carries through to discussions of testing. The discussion of color vision testing is condensed to the statement that isochromatic plates and lanterns form the two practical color vision tests. Over-simplification by omission is also present, i.e., the discussion of ptosis where no mention is made of acquired ptosis.

Geographical differences in practice, such as the discussion of reversal of pupil dilation with pilocarpine 2%, the advocacy of using chloromycetin in the treatment of conjunctivitis, and the treatment of adenoviruses with acyclovir, are not consistent with routine practice as it is most often found in this country.

While I appreciate the clear, concise presentation, the limitations of this book for the practicing optometrist are obvious, and I would hesitate to endorse it for every optometric bookshelf.

Reviewer: Dr. Scott Richter
SUNY State College of Optometry

Ocular Accommodation, Convergence and Fixation Disparity: A Manual of Clinical Analysis. 2nd ed., David A. Goss, Boston: Butterworth-Heinemann, 1995, 222 pages, including index, softbound, $30.00.

In his preface, Goss notes that the purpose of the second edition of his manual remains the same as the first: to help first and second year optometry students learn the basic concepts in case analysis of patients with non-strabismic binocular vision problems. As one who teaches case analysis to second year students, I found the first edition of this manual to be unparalleled in its readability and practicality. A work can be acclaimed as classic when it acquires the appellation of its author's last name. As one refers to "Borish," or "Barlett and Janus," one merely mentions "Goss" when referencing information on graphical analysis and normative case analysis.

I imagined it hard for Dr. Goss to improve on the first edition, but he has managed to do so. This edition elaborates on the material on fixation disparity and its clinical uses. Table 11.1 alone is worth the price of the manual — a concise summary of signs, preferred analysis method, and recommended treatment for each of the vergence disorder case types. Chapters 13, 14, and 15 represent a significant expansion of the material devoted to accommodative analysis, accommodative-vergence interaction and an introduction to therapeutic approaches. Chapter 16 includes an introduction to OEP analysis, a subject which was omitted from the first edition.

The latter point underscores the only shortcoming of this manual. Goss comments that OEP uses a unique terminology and a vernacular that can be difficult to understand. Herein lies a dichotomy. Were manuals such as this one, widely used by educators, to include a more balanced presentation of OEP analysis, the subject would not be perceived as cryptic by students embarking on their clinical experiences. Since he is being candid about OEP analysis, Professor Goss should add that very few clinicians use graphical analysis because it is cumbersome and time consuming.

I look forward to the third edition of this excellent manual. For that edition, Goss would do well to incorporate what Schieman and Wick refer to as "Integrative Analysis" in their text on Binocular Vision Disorders. In the interim, this edition remains a classic work well suited to first and second year optometry students.

Reviewer: Dr. Leonard J. Press
SUNY State College of Optometry

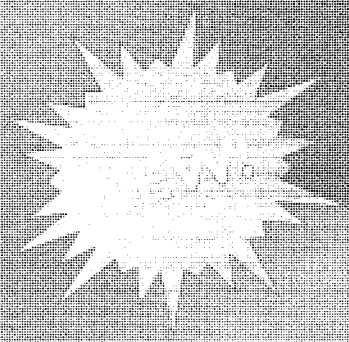
Dictionary of Ophthalmic Optics, Arthur H. Keeney, Robert E. Hagman, Cosmo J. Fratello and the National Academy of Opticianry, Boston:Butterworth-Heinemann, 1995, $29.95.

In this dictionary, the authors define ophthalmic optics as "the science of optics dealing primarily with the eye and its relations to light and optical devices associated with vision..." However, the scope of terms included in this book far exceeds that description. For example, I would not expect to find definitions of alopecia, candida, or the symbols for a number of chemical elements in a dictionary of ophthalmic optics. While such breadth might be laudable, it is unfortunate that more relevant terms such as depth of field, manifest hyperopia and Badal optometer have been omitted. The text would also have been improved by the inclusion of alternative spellings, such as dioptre and stenopaeic slit.

While it is inevitable that one is going to disagree with certain definitions, several seem to be inaccurate. This is particularly unfortunate because the authors indicate in their preface that precision is to be espoused even at the expense of using unfamiliar constructions or wording. For example, it is suggested that esophoria is generally manifest in the absence of adequate fusional stimuli, whereas it is always assessed under such dissociated conditions. Other errors include the proposal that orthophoria is the "normal Negro-muscular alignment of the two eyes," thereby implying that the presence of heterophoria is abnormal, and suggesting that the standard pinhole has a diameter of only 0.05mm. A definition of the left eye seems both unnecessary and unhelpful, referring to the eye on the east side of the body when one faces north.

It is difficult to recommend this book to either optometrists or optometric students. I found the most interesting part of the book to be the preface, which presented a fascinating, if extremely brief, history of optics. Sadly, the rest of the text failed to live up to this standard. More figures would have improved the work enormously. For example, the definition of splay angle would have been helped significantly by a diagram. Accordingly, currently existing dictionaries such as *the Dictionary of Visual Science* by Cline, Hofstetter and Griffin, or the *Dictionary of Optometry* by Millodot would seem to be more valuable publications.

Reviewer: Dr. Mark Rosenfield
SUNY State College of Optometry



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*Patent #s: 5272495, 5270745, and 5488442.
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