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Fall 1985

**Gerontology and
Optometric Education**

Association of Schools and Colleges of Optometry

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Optometry and Gerontology: A Vital Link

The American obsession with youth is slowly giving way to a growing respect for the elderly person. This is due largely to the fact that the "young" are becoming rapidly outnumbered by the "old." Hopefully, this numerical growth will foster corresponding growth in increased roles and vocational opportunities and in greater resource allocation for elderly persons.

The "greying of America" has special implications for optometric education. The vision care of the elderly patient requires different knowledge and altered behavior from that needed to care for young or middle-aged adults. Physically, the elderly are more likely to suffer from several disease conditions simultaneously. Emotionally, the elderly need a holistic approach from the optometrist. This is especially true of the "old-old" and the frail elderly.



This issue of the *Journal of Optometric Education* underscores the importance of geriatric patient care by presenting a survey of the status of instruction in geriatric optometry, by describing several optometric institutions with emerging programs of promise, and by proposing a curriculum model to guide program development.

Because there is a positive correlation between knowledge and attitudes, optometric faculty should consider early in their professional school curricula definite educational strategies to impart knowledge about the aging process and about the health care and social problems of the elderly. Training in geriatric optometry should include exposure to the philosophical as well as the practical aspects of aging. A health care professional with some understanding of the social and economic aspects of aging is much more able to prevent exacerbations of illness, to achieve patient compliance with treatment programs and to interact with patients and their families in a more meaningful manner. An optometrist who understands the important differences between the "functional" elderly and the "non-functional" or infirm elderly is much better able to improve the vision of both groups.

Here then is the challenge . . . by understanding the unique features of vision function in the elderly, by recognizing potential reactions to eye health and vision problems, and by being realistic in expectations of management outcomes, optometrists can enhance maximum visual function, comfort and health in older persons, and add dignity and meaning to precious remaining years.

It is hoped that these articles, particularly Dr. Rosenbloom's proposed curriculum model, will stimulate discussion within the profession in the area of geriatric optometry.

John W. Potter, O.D.

John W. Potter, O.D.
Editor

Journal of Optometric Education

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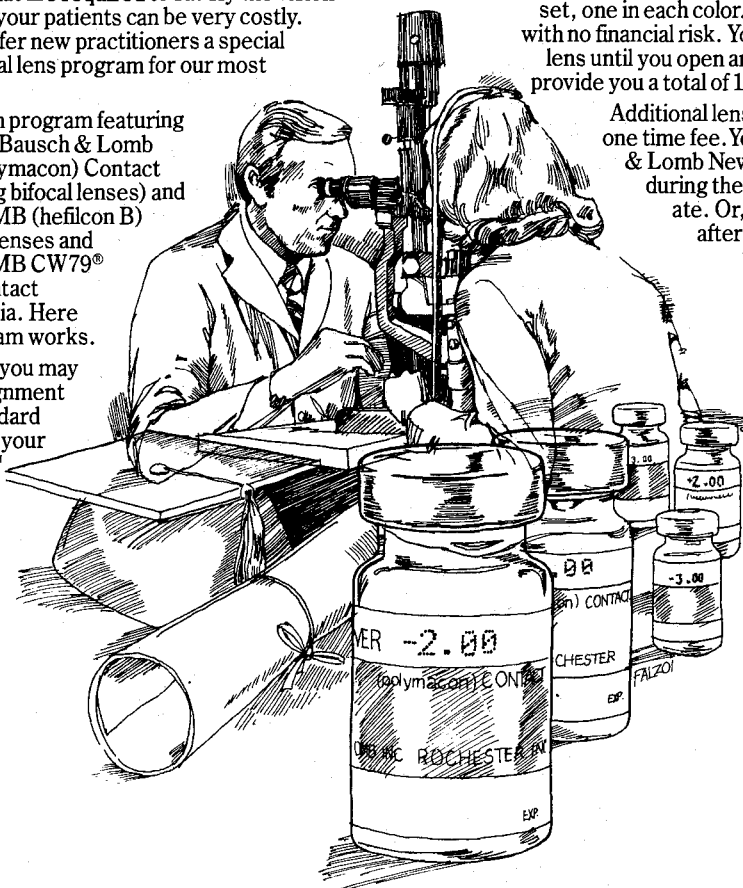
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
After graduation you may receive on consignment your first 20 standard spherical lenses, your first 6 OPTIMA™ 38 lenses, and your first 24

bifocal lenses for no charge. For extended wear, you can select up to 20 O3® O4® lenses and 10 B&L 70™ lenses. Plus we will send you up to 24 Toric lenses for astigmatic correction and 20 CW79® lenses for aphakic extended wear. You can even receive a 4 lens NaturalTint™ fitting set, one in each color. You enjoy free use of the lenses with no financial risk. You're not obligated to purchase a lens until you open and dispense it. This program can provide you a total of 128 lenses for your new practice.

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SUSTAINING MEMBER NEWS

Sustaining Members support ASCO initiatives on behalf of the optometric education community. 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.

Humphrey Introduces New Office Computer

After putting thousands of computer based instruments in ophthalmic offices, Humphrey Instruments recently introduced the ultimate ophthalmic instrument—a computer to manage the office. The Humphrey Office Computer offers complete clinical and financial practice management software specifically tailored to ophthalmic needs. Available software includes medical billing and insurance processing, medical records, electronic claim transmission, patient recall, scheduling, inventory, accounts payable, general ledger and payroll.

The Humphrey family of ultra-fast office computers spans the range from a single terminal system for the growing practice to a full scale minicomputer for multi-doctor clinics. This means a doctor can start out with a small computer and upgrade as the practice grows. All systems are designed for multiple simultaneous users with no loss of speed.

CIBA-GEIGY/American Optical Reach Agreement

A September 12 agreement finalized negotiations between CIBA-GEIGY and American Optical Corporation under which CIBA-GEIGY will purchase the contact lens and lens care product businesses of American Optical.

Under the agreement, the Contact Lens Division of American Optical will become part of the Vision Care business of CIBA-GEIGY. Located in Atlanta, Ga., Ciba Vision Care is part of CIBA-GEIGY's Pharmaceuticals Division, which is headquartered in Summit, N.J.

"This agreement with American Optical will enable Ciba Vision Care to expand its product line to include contact lens solutions and extended wear lens materials," said John E. O'Day, president of Ciba Vision Care. "The agreement also will further help the growth of Ciba Vision Care worldwide."

"We see this agreement as an excellent opportunity in the optical business for

both companies," said James J. O'Connor, president of American Optical. "CIBA-GEIGY gains a much broader product line and acquires a worldwide distribution system which complements its existing business."

American Optical is an international manufacturer of optical goods. Founded 153 years ago, it is the oldest optical manufacturer in the U.S. Sales from its contact lens and lens care product businesses totalled \$33 million in its 1985 fiscal year. Headquartered in Southbridge, Mass., American Optical also has a facility in Framingham, Mass., and has more than 450 employees in the business being acquired by CIBA-GEIGY.

Ciba Vision Care is a major manufacturer of daily-wear soft contact lenses. Its major product is the Softcolors line of cosmetically tinted lenses. Ciba Vision Care has administrative offices as well as research and manufacturing facilities in Atlanta.

Personnel Changes

Richard J. Montag has been named marketing services analyst at Vision-Ease. In his new position, he will be responsible for market forecasting and planning for specific lens product lines. In other news at Vision-Ease, Mike D. Jacobson has been named product manager for Unison progressive bifocal lenses.

At Marchon Eyewear, Frank White will serve as chairman of the Strategic Planning Committee. Ruth White will serve as vice president of Styling and Communications. Jack M. Weber, O.D., also joined Marchon as director of its new professional education programs.

Gas Permeable Lens Introduced by Bausch & Lomb

Bausch & Lomb has entered the U.S. gas permeable lens market with the introduction of the Bausch & Lomb® (itacon A) H.G.P. Contact Lens.

The lens is a silicone acrylate polymer that combines high oxygen permeability

and outstanding wettability. "The introduction of the H.G.P. lens is testimony to our commitment of providing a multitude of soft and rigid lens fitting options to meet the varying needs of the eye care professional and patient," according to James M. Callahan, Vice President of Marketing and Sales for Bausch & Lomb's Professional Products Division.

The Bausch & Lomb H.G.P. lens is available in over 1,600 stock parameters for which B&L maintains an on-going stock inventory. In addition to providing lenses from its stock inventory, the company also offers parameters on a made-to-order basis bringing the total number of parameter offerings for the B&L H.G.P. lens to over 14,000. "Our objective," Mr. Callahan explains, "was to design a rigid gas permeable lens which we could provide from our stock inventory of lenses for a majority of patients eliminating the need for extensive customization and in-office modification. Our studies show that at least 80 percent of patient requirements will be met with our stock parameters."

Barnes Hind Honors Students

As part of the 1985 Optometric Education Grant Program, Barnes Hind named seventeen students as winners of its Graduate Recognition Award. The students were selected from the graduating classes of each of the schools of optometry in the U.S. and Canada. Based on the recommendations of the faculty, those students who demonstrated outstanding aptitude in the area of contact lenses were nominated for the award. Each of the graduates was given a \$500 honorarium and invited to participate in a 3-day Graduate Advisory Panel in San Diego during August.

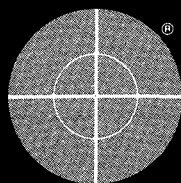
"The students who earned the Graduate Recognition Award show great promise for furthering and improving the quality of eye care," said Ron O'Hara, Director of Academic Development. "Barnes Hind is pleased to have this opportunity to recognize and honor their achievements." □



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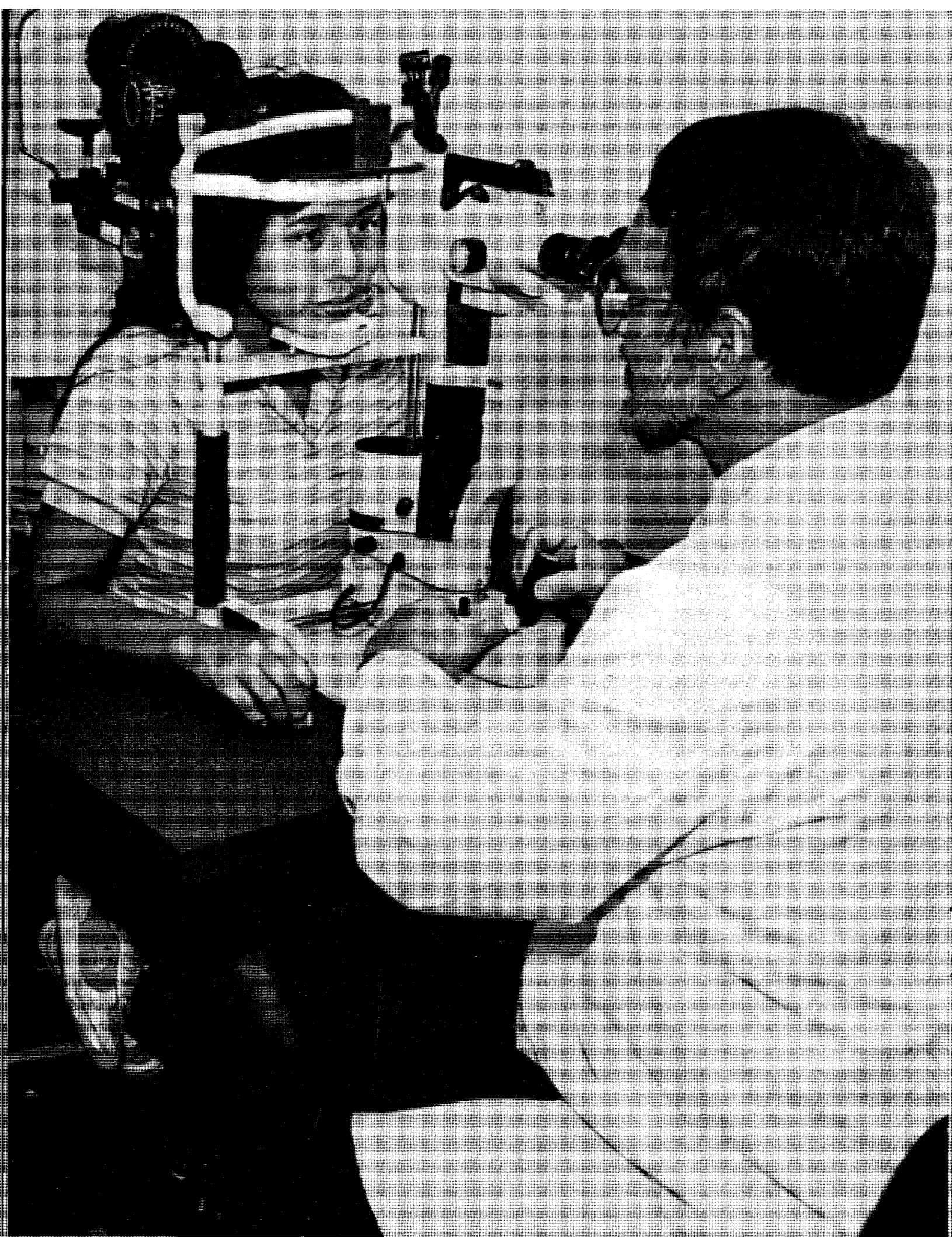
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Northeastern State University College of Optometry

W.C. Maples, O.D.

Tahlequah, Oklahoma boasts one of the nation's newest optometry colleges. The college, according to Dr. W. Roger Webb, President of Northeastern State University, is the institution's "academic jewel." The doctorate in optometry is the only terminal degree conferred by the university. This article discusses the history and operation of Northeastern State University's College of Optometry.

History

The name Oklahoma is derived from two Choctaw Indian words. The first term, "okla," is translated to mean people. The second, "humma," means red. The literal translation of the name "Oklahoma" is "red people." This truly is the land of the red people and no better example can be found than in the northeastern portion of the state for this is the land of the Western (Oklahoma) Band of the Tsa-la-gi, the Cherokee Indian Nation.

The first Cherokees came to the Indian territory that would later be known as Oklahoma in the early part of the last century. The main influx was experienced between 1834 and 1839 on the infamous "Trail of Tears." Twelve thousand Cherokees began this trek from the Carolinas and Georgia and only 7,000 survived.

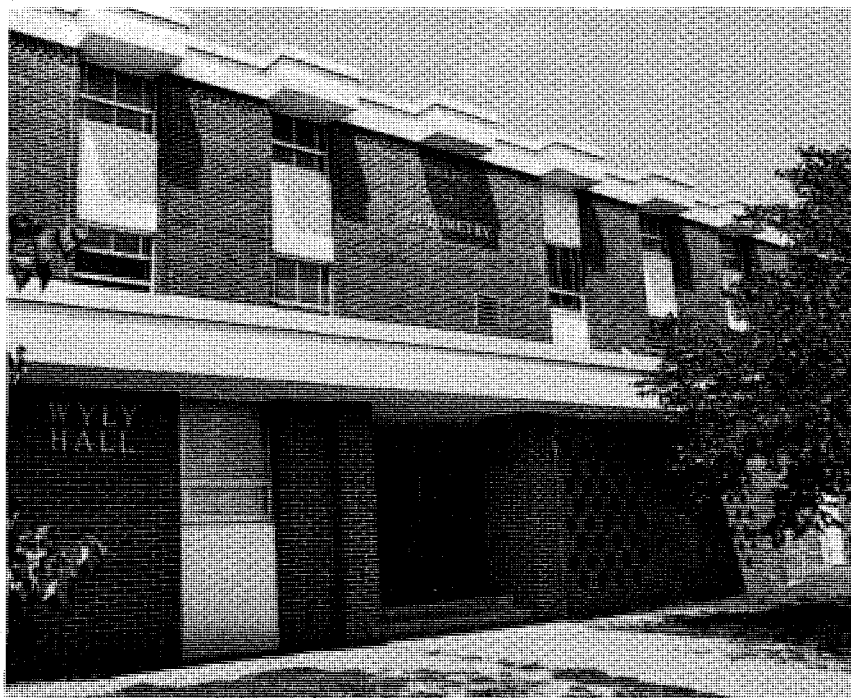
The federal government had decreed that part of the Louisiana Purchase would be set aside to be the home of the individual Indian Nations east of the Mississippi River. Over 60 tribes, includ-

ing the five civilized tribes (Choctaw, Creek, Chickasaw, Seminole and Cherokee), were at this time removed to eastern Oklahoma. The Cherokees were settled in the northeastern part of the Indian Territory.

The Cherokees founded the capital of their new home on the site that eventually would become Tahlequah. It is said that three representatives were sent ahead by the tribe to find a suitable location for the capitol of the nation. Only two of the men arrived at the meeting. Since only two of the three delegates arrived, the pair agreed "tah-le-quah" (two is enough), and the decision was

made accordingly. The two agreed to found the capitol by a spring that emerged from the side of a small hill and meandered into a stream at the bottom of the hill. (This spring today is on the campus of Northeastern State University.) The word "Tahlequah," literally translated from Cherokee, means two is enough.

What was to become Northeastern State University began in 1846 when the Cherokee National Council established a National Male and Female Seminary. These educational institutions had been stipulated in the treaty that was signed between the Cherokees



The College of Optometry campus home is Wyly Hall, on the campus of Northeastern State University in Tahlequah, Oklahoma.

W.C. Maples, O.D., is associate dean of Northeastern State University College of Optometry.



A large waiting list of patients is the rule in the reception area of the Pheiffer Clinic.

and the United States in 1835. Classes began in 1851 at both institutions.

In 1909 the Indian Seminary program was bought by the state of Oklahoma and Northeastern Normal School was formed. The institution became Northeastern State Teachers College in 1919 and was changed to Northeastern State College in 1939. Steady growth in the college was noted and in 1974 the institution was changed by the state legislature to Northeastern State University.

NSU Optometry College

In 1973, the Oklahoma state legislature commissioned the Board of Regents for Higher Education to study the future needs of optometric manpower in the state. Oklahoma at this time was sending its optometric students to various colleges in other states. This arrangement was through "contractual agreements" with schools and colleges outside Oklahoma, notably Southern College of Optometry and the University of Houston.

The subsequent study, "Optometrist for Oklahoma: A Study of Supply and Demand to 1990," concluded in May 1974 that, if the present growth projections for the state were correct and retirement trends continued as in the past, Oklahoma would need a minimum of twenty-three new optometrists every year to fulfill predicted needs. This study demonstrated to the state that not only was an optometric college feasible, it was indeed desirable.

It became apparent that a college of optometry should be associated with an existing university or college system so that facilities, resources and funding could be utilized more effectively. The legislature mandated that NSU be considered as a potential site for the new school. The university had all the requisites for the college but a major obstacle in instituting such a program was the lack of an adequate population. A city the size of Tahlequah (population 10,000) and Cherokee County (population 30,000) could not be expected to supply the needed clinical population for such a program. Analysis of demographic data on the basis of travel time revealed that about 145,000 people resided within about one hour's driving distance of the city. Many of these are of Native American descent and are therefore eligible for services provided through the Public Health Service's Indian Health Service.

The concept of a marriage between the new optometry school and the Indian Health Service was the brainchild of Bill Thorne, administrator of W.W. Hastings Indian Hospital and Dr. Kirk Boatright, dean of academic affairs at NSU. Negotiations were entered into with the Cherokee Nation and the U.S. Public Health Service for the College of Optometry to provide optometric care to the patients of W.W. Hastings Indian Hospital. The hospital, located in Tahlequah, serves the Native American population, mostly Oklahoma Cherokees, but it is open to any person who can prove Indian descent.

NSUCO: The Early Days

The Board of Regents instructed NSU to begin a two year optometry program in 1977 and, in August of 1979, the College of Optometry at NSU accepted its first twenty-four students. The college was off and running. Dr. Chester Pheiffer had accepted the position of Chairperson of the Division of Optometry in the College of Math and Science. Dr. Pheiffer, with the help of two full-time and several part-time faculty, entered the first class in the new optometry program. The second year saw the addition of one full-time faculty in September and one at mid-year.

The initial charge from the Board of Regents had been for a two-year program. In July, 1980, a third year was approved. Later that same year they approved the full four-year program and more faculty were hired to round out a four-year optometric curriculum.

The philosophy of the college has always been one that encouraged open and positive approaches to educating the student. All philosophical backgrounds and schools of thought are given equal exposure. The policy of the college has been, whenever possible, to engage specialists in different aspects of optometry to teach in their particular area of interest. In addition to being able to teach in the classroom, faculty members are expected to demonstrate clinical skills in their specialty areas. This requirement allows continuity between classroom and clinic in all phases of optometric education environment.

The clinical portion of the NSUCO moved to its present site in the W.W. Hastings Indian Health Service Hospital in 1984. Services include basic examination procedures, vision therapy, vision rehabilitation, contact lens care, detection, differential diagnosis and treatment of diseases or anomalous conditions, as well as styling and dispensing. The clinic is equipped with many of the newest instruments available including automatic refractors, field testers, photography, electrodiagnosis and ultra sound. Patient examination appointment schedules are scheduled months in advance in most clinics. The optometric staff are an integral part of the hospital health team as hospital staff members. Close lines of communication are found between optometry and other health professionals including medical, pharmaceutical and laboratory personnel. The NSU program is now respon-

sible for all optometric and eye services at W.W. Hastings Hospital.

Curriculum Organization

The four year professional program begins with basic optometric science courses such as physics, anatomy, physiology and basic optometric examination techniques. An introductory course on the role and scope of optometry is offered in the first semester.

The second semester of the first year at NSUCO provides the student clinical exposure under close faculty supervision. This early exposure is a unique and significant positive departure from more traditional programs that introduce the professional student to a clinical situation in the third year. It is felt that the sooner the student begins to apply newly acquired skills the more meaningful these skills will be for the individual.

The nature of the first year students' clinical encounter is a screening performed one afternoon per week in the hospital. The basic screening is an expanded modified clinical technique. The expanded areas of investigation include extensive nearpoint retinoscopy, preliminary or "chair" skills testing, specialized testing as warranted by the staff and triage/SOAP notes. A set pass/fail criterion is adhered to by the students and staff. This criterion is tempered by subjective complaints. Such a procedure gives the student early exposure

to communication and interview skills that are so important to the practice of optometry. It is not unusual to recommend that a patient with borderline findings be retested at a later date. Failures are referred to the proper clinics at the time of the screening. Children that pass the screening are instructed to return in one year for another screening.

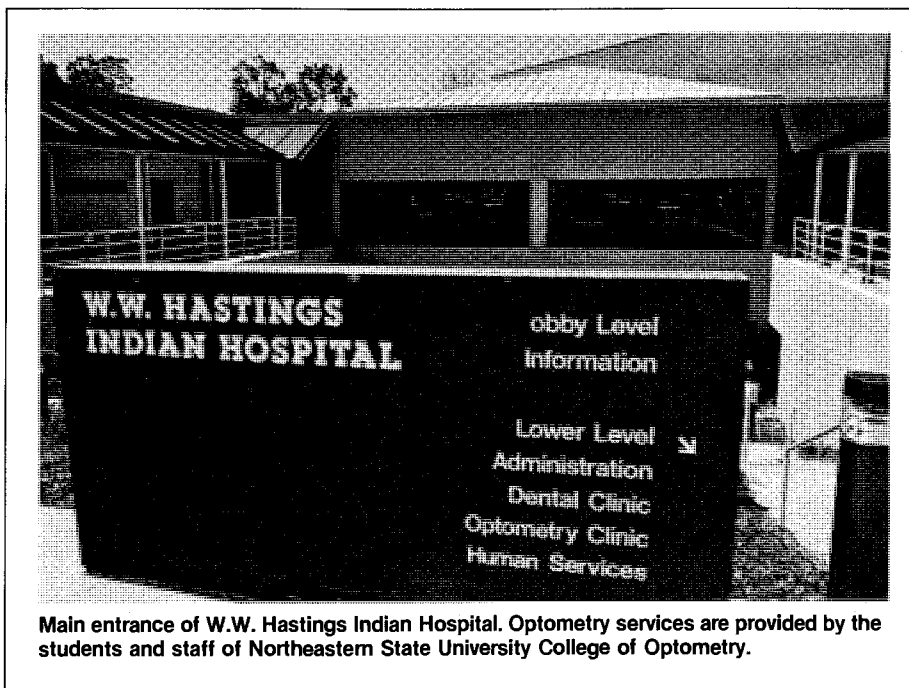
The second year emphasizes courses in the sensory motor function of the visual system, pathology, ophthalmic mechanics, contact lens and optometric prescription writing. Both graphical and

analytical analysis are taught in this year.

The same concept of introducing the student to the clinical situation as soon as possible after the technique has been mastered in the classroom is continued into the second year. The students are expected to demonstrate their expanded clinical skills in the clinic screening, and in addition, to participate in a required, out of clinic, school screening during this year. This school screening is performed one morning a week for one semester. Valuable communication skills with other professionals are developed and each student is given an opportunity to supervise and make triage decisions concerning the results of the screening. The second year student is also required to observe and assist in the general clinic. Ample opportunity is given to the student to critique clinical techniques.

The third year involves the NSUCO student with both didactic and clinical responsibilities. Courses to be emphasized in this year are binocular and perceptual aspects of vision, vision rehabilitation, pharmacology, environmental vision, ocular pathology and vision therapy.

By this time in their professional careers, all students are performing full optometric workups. Workups include general, pathology, contact lens, dispensing, pediatric, visual rehabilitation and vision therapy clinics. The fourth year offers the student courses in prac-



Main entrance of W.W. Hastings Indian Hospital. Optometry services are provided by the students and staff of Northeastern State University College of Optometry.



Student Linda Barton (right) and Dr. Lynn Cyert test a child's near point performance.



Dr. Chester H. Pheiffer, Dean of NSUCO, and Dr. Roger West survey electrodiagnostic equipment used in the Neuro Optometry Clinic at W.W. Hastings Hospital.

tice management, public health, research and elective areas. A clinical waiting list of about six months insures that the NSUCO graduate will be well trained in all aspects of clinical optometry.

Therapeutics and Continuing Education

In April 1984, Oklahoma became the first state having an optometry college located within its boundaries to pass a therapeutic drug bill. The uniqueness of this situation places the college in a position to offer leadership to the profession. NSUCO is moving quickly into an even more expanded role in primary care than even the most enthusiastic proponents of therapeutics could have imagined possible ten years ago. This movement offers a real challenge to the institution as it incorporates the new aspects of the profession, without detracting from the traditional role of the optometrist, in giving complete visual care to patients.

The college has been actively engaged in continuing education since its inception. The passing of the therapeutic bill and the availability of the Indian Hospital, as well as the faculty and staff of the university, allow the practicing optometrist an excellent opportunity to learn the newest developments in every area of optometry.

A problem becomes evident when an institution begins to offer continuing education in a relatively new area of the profession. This problem can best be

stated in that there are many different levels of expertise found within the actual clinical practice of optometry.

In order to keep optometrists updated with rapidly changing technology, NSUCO developed a layered program of continuing education. The first step of the program is the introductory course for participants who have negligible skills and knowledge in the par-

ticular topic or field. The second course is designed for the person who has a basic knowledge of a particular area but cannot demonstrate skills sufficient to feel comfortable in that aspect of the discipline. The highest level of continuing education is for the advanced student. This level, updated periodically, is an in-depth presentation of the significant new research in a particular area.

Since the passage of drug legislation in Oklahoma the thrust of continuing education has been in the area of pathology detection and treatment; however, no specialty area of optometry is exempt from this layered approach. This program is designed to keep the practicing optometrist on the cutting edge of new developments in optometry. The unique position that NSUCO occupies, with its close cooperation with W.W. Hastings Hospital, guarantees this program a primary place in the future optometric education of the practicing optometrist.

Educational Accomplishments: Past, Present and Future

NSUCO has graduated three classes. The first class consisted of 24 students (Table 1). Of this number, 17 graduated from the program. The second class



Wes Hall, President of the Northeastern Optometric Student Association, performs a binocular indirect ophthalmoscopy. He is supervised by Dr. Earl Schmitt, Director of the Chester H. Pheiffer Optometry Clinic at the hospital.

TABLE 1
Demographic Data on the Entering Class Student Population
Northeastern State University College of Optometry

Entering Class	Number Admitted	Sex		White	Race			Age (Mean)	Residency	
		Male	Female		Black	Indian	Hispanic		OK	Non OK
1979	24	22	2	19	0	5	0	23	24	0
1980	24	20	4	19	1	3	1	27	24	0
1981	27	23	4	26	0	1	0	31	27	0
1982	25	19	6	23	0	2	0	29	25	0
1983	24	21	3	20	0	2	2	26	24	0
1984	23	17	6	19	0	4	0	27	19	4
1985	26	16	10	22	0	3	1	26	24	2
Total	173	138	35	148	1	20	4	27	167	6

graduated 22 of 24 that were admitted and the most recent graduating class graduated 24 of the 27 that were admitted. Female entrants have ranged from a low of two to the entering class of 1985 which will have the largest number of females (10) of any class enrolled so far. The majority of the students have been from European backgrounds followed by Native Americans, Hispanics and Blacks. The college is making a concerted effort to develop recruitment procedures for all minorities but especially for the black population, since only one black has been admitted to this time.

The entering classes have been Oklahoma residents until the 1984 entering class when a total of 4 non-resident students were accepted. The policy of accepting non-Oklahomans as qualified on a limited basis will most probably be continued in the future. It is anticipated that the broad scope of optometric care practiced in the state of Oklahoma will make this program a leading optometric educational institution.

The College has uniquely involved private practitioners in the educational process. Optometrists from the Oklahoma City area teach the practice management courses and another private practice optometrist teaches a required course in public health. Other private practitioners offer elective courses in specialty areas. A representative of the college normally attends the Oklahoma Optometric Association Board meetings and reports activities of the school to the board. With this interfacing, positive and cooperative efforts are being fostered between private practice and educational optometry in Oklahoma.

Research is an integral part of both the faculty and student agendas. All fourth year students are required to complete a research study. In addition, all faculty members are conducting their own research projects in individual interest areas. An annual symposium is conducted at which invited papers are presented and compiled in book form for distribution to the participants as well as to colleges and universities. Student participation is encouraged in this symposium.

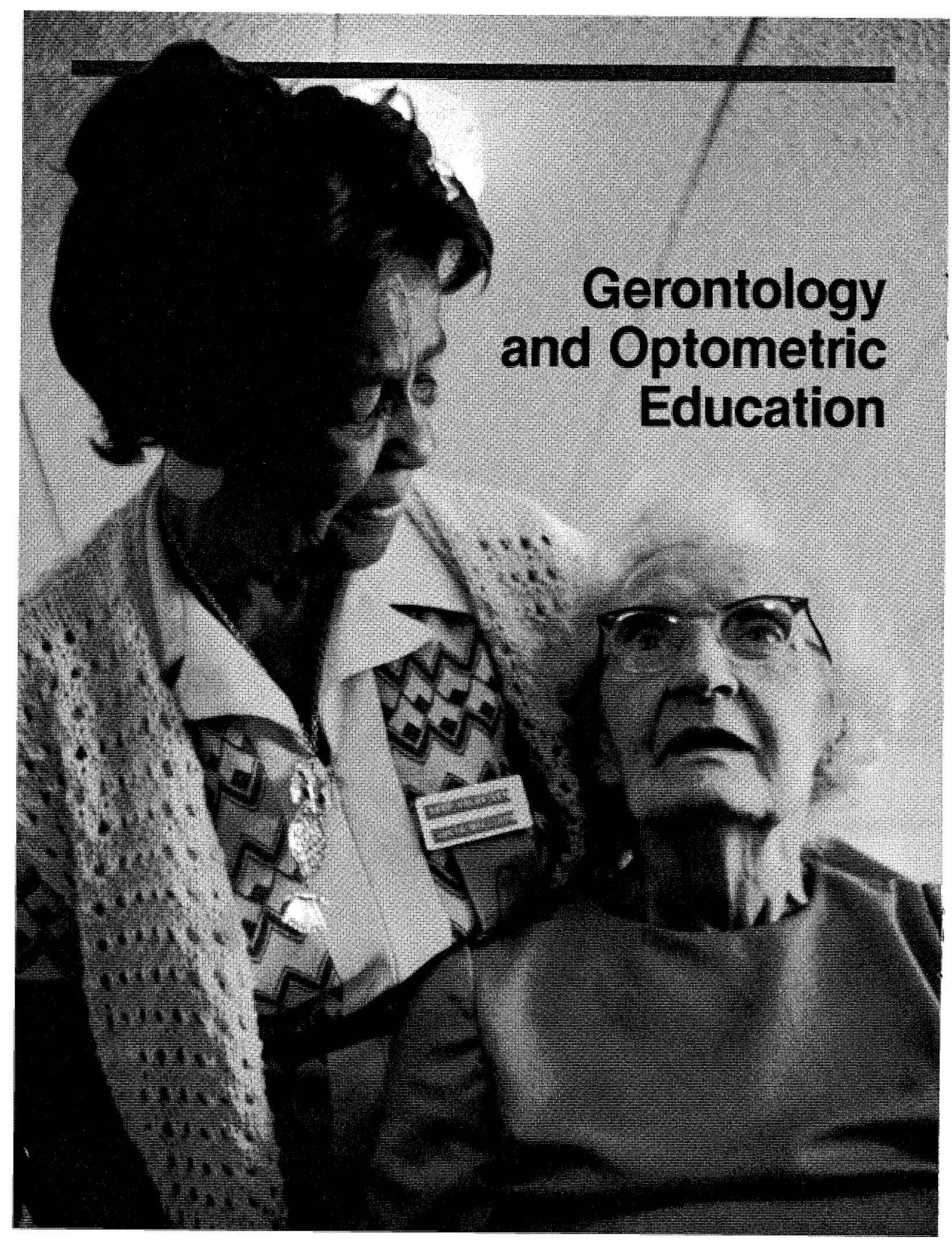
The student population is considered to be the hub of the educational wheel at NSUCO. An active student government program is the nucleus of the student participation that includes a book and equipment purchasing service, support of the university student activities and support for the pre-optometry club at NSU. Recruitment, guest lectures, social functions and meaningful input to the College's administrative leaders are also major aspects of the student involvement in the optometry program.

Affiliated clinics are being utilized effectively. Programs with Fort Sill, U.S. Army Hospital, Neighbor for Neighbor (low income, urban Tulsa clinic), Parkview (Oklahoma School for the Blind), S A NOEL and selected private practitioners that can offer unique experiences to our students have been used in this capacity. Possibly the most exciting aspect of the external clinics concept is the College's participation in the OkAHEC program. This Area Health Educational Council (AHEC) Program is administered through the Oklahoma College of Osteopathic Medicine. Currently in the planning stages, this pro-

gram will involve practicing optometrists and optometric students with external clinical experience in rural Oklahoma areas on a rotating basis. These externships will be hospital and clinically based and will cover the full scope of care from social behavioral and developmental experiences to the traditional optometric and medical contacts. Linkages and networking of the profession into the health care field is constantly nurtured at NSUCO. Every effort is being made to increase and expand the role of the teaching hospital/optometric college symbiosis. Residencies are now being developed in primary care, pediatrics and psychiatry.

Summary

Northeastern State University, the Native American population, Oklahoma and optometry have a proud and varied heritage that has been married. The offspring is Northeastern State University College of Optometry. Optometry in Oklahoma is taking its rightful place in the full scope health care delivery system. It is cooperating as a rightful and full member of the health care team as this team strives for the betterment of the state, the nation and the world. With this challenge comes the problem of solving the difficulties inherent in a full scope health care delivery system as well as the spiraling cost factors associated with this delivery. NSUCO stands ready and willing to do its fair share to design and implement novel and improved delivery systems that are aimed at cost containment, disease prevention and promotion of health for all the population it serves. □



Gerontology and Optometric Education

Teaching Programs in Geriatric Optometry

Albert A. Rosenbloom, O.D., M.A.

PART ONE

Introduction

Beck, Ettinger and Jakobsen, writing in *Gerontology and Geriatrics Education*,¹ state that medical and dental practitioners are reluctant to treat elderly patients. They cite various reasons for this reluctance and name the following as most common:

- Negative attitudes toward the elderly, generated by a cultural bias against old age.
- A general lack of knowledge and experience in treating elderly patients.
- A lack of experience in treating patients outside the private office setting; and
- A lack of financial incentive which is, in part, due to the additional time needed to treat elderly patients.

Moreover, Robert Butler, former Director of the National Institute on Aging, comments that a study of University of California medical students showed that their attitude toward old people actually worsened during four years in medical school. Student experience with elderly persons tends to reinforce deep fears about mortality and disability, with the predictable result that the more such fears are suppressed, the greater the likelihood of unsatisfactory relationships with aged patients. The so-called senile write-off becomes an easy, genteel maneuver to adopt—to interpret the patient's ailments as trivial, requiring no serious treatment, and to dis-

miss patients with a drug prescription or patronizing advice.²

In fact, many educators have voiced concern regarding the lack of care for the elderly patient, noting the absence of meaningful geriatric education in schools of the health professions. These educators call for the teaching of a philosophy of geriatric care which includes several components: the treat-

"The basic thrust of the questionnaire was the obtaining of information concerning the nature of education, both formal and informal, in geriatric optometry."

ment of the whole person rather than the specific disease entity; modifications of diagnostic and treatment modes for the elderly; and considerations of patient management and patient compliance. Such a philosophy, implemented through teaching and clinical programs devoted to geriatric patient care, should result in a change of attitudes toward the elderly and a consequent greater confidence among practitioners in providing care to this group.

Present Study

Recognizing the importance of determining the state-of-the-art in teaching programs in geriatric optometry, this author undertook a survey of such programs in all optometry schools in the United States and Canada. To carry out this survey, a questionnaire was sent to 17 optometry schools. All but two schools replied. The basic thrust of the

questionnaire was the obtaining of information concerning the nature of education, both formal and informal, in geriatric optometry. More specifically, questions were asked on such topics as off-campus programs, residency programs in geriatric patient care, continuing education and research planned or underway. The respondents were also encouraged to express their opinions regarding the best way to provide needed instruction in geriatric optometry.

Findings

Organization of the Curricula

Table 1 presents data on the organization of the curricula. Ten schools (67%) provided a formal course in geriatric optometry. Within this group, 5 courses were presented in the third year; 3 in the fourth year. One school reported a formal course in geriatric optometry as an elective to both third and fourth year students while another school offered such a program in the summer session between third and fourth years. Schools not offering a formal course provided instruction through occasional lectures in related courses, e.g., instruction in aging as a segment of a low vision course, instruction by clinical preceptors and an elective-seminar series.

Several schools submitted course outlines which provided further insight into course objectives and content areas. A review of several course outlines indicated the most common topics to be the following: (Table 2).

- demographics of an aging population
- role transitions in later life
- biology and physiology of aging
- health problems of the elderly
- normal age-related eye/vision changes
- common systemic and ocular diseases among elderly persons
- drug utilization review in geriatric practice
- modifications in examination techniques

These papers were presented to the Section on Optometric Education, American Academy of Optometry, meeting December 1984 in St. Louis.

Albert A. Rosenbloom, M.A., O.D., presently serves as the Illinois College of Optometry's first Distinguished Professor of Optometry. For a period of twenty-five years, he served as dean and then president of the Illinois College of Optometry. He is a former president of the Association of Schools and Colleges of Optometry. Dr. Rosenbloom is a contributing author to five textbooks and is co-editor of a new text entitled *Vision and Aging: General and Clinical Perspectives*, to be published in December 1985.

TABLE 1
Instructional Methods for Geriatric Optometry
Schools and Colleges of Optometry

1. Is a formal course of instruction in Optometric Gerontology offered?	YES 10	NO 5
2. If so, what year in the curriculum is the course offered?	III Year 5	IV Year 3
One course is offered in the summer between III and IV Professional years One course is elective for III and IV year students		
3. If no formal course is offered, is instruction in the care of elderly patients covered in other courses?	YES 5	NO 0
4. In your opinion, what is the best way to provide needed instruction in Geriatric Optometry?		
9 a single course in the third professional year		
3 a single course in the fourth professional year		
2 spread course elements among existing courses		
1 plan more than one course during the third and fourth professional years		

Note: Most respondents recommended a combined approach incorporating topics important to aging throughout the curriculum with a formal didactic course for unifying concepts by the end of the third professional year.

TABLE 2
Most Common Topics in Academic Instruction
(not in rank order)

1. demographics of an aging population
2. role transitions in later life
3. biology and physiology of aging
4. health problems of the elderly
5. normal age-related eye/vision changes
6. common systemic and ocular diseases among elderly persons
7. drug utilization review in geriatric practice; use/abuse and interactions between medications
8. modifications in examination techniques and procedures
9. aphakic refraction and correction
10. prescribing for and management of the elderly patient
11. the aging network

TABLE 3
Distribution of Off-Campus Geriatric Optometry Programs

Site	Number of Schools Reporting this Activity
Screenings in Senior Centers and in Health Fairs	10
Nursing Homes	8
VA Hospitals (residency rotations)	8
Geriatric Day Care Centers	3
General or County Hospitals	3
Community Health Centers	2
Mobile Clinic Services	1
Lighthouse (with Geriatric Visually Impaired Program)	1
Vision Center (with multidisciplinary care services)	1

- aphakic refraction and correction
- prescription for and management of the elderly patient
- network of community services for the aging

Clinical Training Programs in Geriatric Optometry

The questionnaire also requested information regarding the clinical content of the curriculum, both on-campus and off-campus. Three schools reported on-campus special provisions for elderly patient care. One provides a Geriatric or Adult Clinic Module for patients over 40 (UH); another appoints patients 65 and over to a Geriatric Clinic where special attention is paid to their needs (SCO); and a third provides for a Low Vision/Geriatric Clinic (UAB) which distinguishes between these two areas of patient care while addressing the overlap that exists in this population.

Table 3 describes nine different kinds of off-campus programs. In rank order, the most common off-campus program involved screenings in senior centers and health fairs. Others frequently cited include satellite programs in nursing homes; VA hospital geriatric optometry units; geriatric day care centers; general or county hospital units; and community health center programs. Programs cited by a single respondent included one for the geriatric visually impaired program in a local Lighthouse for the Blind; a mobile clinical service unit; and a geriatric unit in a multidisciplinary vision care center. No information was provided regarding the amount of student training within the total patient care curriculum. Moreover, no provision was made to determine whether students participating in these off-campus activities gained equivalent clinical experience.

In addition to providing some kind of off-campus clinical experience, five schools reported outreach education programs for the healthy aged. Most of these involved faculty lecturers for events sponsored by community organizations.

Residency Training Programs

Another type of off-campus program is the VA hospital residency training program characterized by academic affiliations with the optometry schools. Six schools reported off-campus student rotations. Most named one VA hospital affiliation while one school reported student rotations with three hospital affilia-

tions. Table 4 reports the types of residencies and the schools reporting those programs.

Continuing Education Programs

Seven of the 15 respondents reported continuing education programs in various aspects of vision and aging. In addition, two stated that occasional courses were scheduled and one reported that courses had been discontinued as a result of a lack of interest in the topic.

Research

Four schools reported one or more research studies in vision and aging. See Table 5 for a description of the studies.

Two schools reported the submission of grant applications whose outcome is pending. In addition, one school reports plans "to build a substantial research program in the future in low vision, pathology detection and optometric gerontology."

Discussion of Findings

What do these patterns tell us about the status of geriatric education in optometry?

First, although the results are generally positive, they show a wide range both in type and in depth of programs, especially apparent in the nature and extent of off-campus programs. When questioned about the most appropriate placement in the curriculum, the majority of respondents recommended a specific course in the third professional year. Most courses are multidisciplinary in nature. Curriculum outlines indicated both specific lecture assignments to faculty members within the optometric curriculum and to guest lecturers who brought special expertise to specific topics. The respondents also agreed that it is necessary to incorporate topics important to aging throughout the curriculum and to utilize guest lecturers with the desired educational and professional qualifications. The development of a curriculum model as a guide for planning instruction in optometric gerontology was considered an important objective in future planning.

Second, in the review of the principal topic areas in the six available course outlines, it seemed that there was little emphasis on a holistic concept of elderly people with vision problems. There seems to be a limited discussion of such



TABLE 4
Residency Training Programs
Schools and Colleges of Optometry

- VA Residency in Hospital-Based Geriatric Optometry, West Side VA Hospital (ICO)
- VA Residency in Geriatric Optometry, Vancouver VA Hospital (PCO)
- VA Residency in Geriatric Optometry, American Lake VA Hospital (SCCO)
- VA Residency in Hospital-Based Geriatric Optometry, Birmingham VA Hospital (UAB)
- VA Residency in Rehabilitative Optometry, Brentwood VA Hospital (SCCO)
- VA Residency in Rehabilitative Optometry, Los Angeles VA Hospital (SCCO)
- VA Residency in Rehabilitative Optometry, Northport VA Hospital (SUNY)
- VA Residency in Rehabilitative Optometry, Columbus VA Hospital (OSU)

TABLE 5
Research in Vision and Aging
Schools and Colleges of Optometry

- | | |
|---|----------|
| • Contract Sensitivity Studies in Aging | (Ferris) |
| • Spatial Vision and Aging—Underlying Neural Mechanisms | (UAB) |
| • The Relationship of Vitamins and Cataracts | (IU) |
| • Glaucoma, Cataract, and Nutrition | (IU) |
| • Drugs with Anti-Glaucoma Potential | (IU) |
| • The Mechanisms of Action of Anti-Glaucoma Drugs | (IU) |
| • Strategies of Fixation with SMD | (UH) |
| • Early Detection of Retinal Diseases of the Aged | (UH) |
| • Color Vision Testing of the Older Patient | (UH) |
| • Psycho-Social Implications of Sight Loss for the Older Person | (UH) |

Two schools reported the submission of grant applications, outcome pending.

- | | |
|---|-------|
| • Prescription Label Legibility in the Elderly | (ICO) |
| • Ocular Pneumoplethysmography and B-Mode Carotid Artery Scanning as a Screening Modality for Stroke Prevention in the Geriatric Population | (SCO) |

One school reports plans "to build a substantial research program in the future in low vision, pathology detection, and optometric gerontology."

(UCB)

topics as the psychological, social, and behavioral aspects of aging, environmental considerations, community resources and multidisciplinary aspects of the "aging network."

Third, the variety of off-campus experiences is substantial. Indeed, the responses to questionnaires designate 9 different kinds of programs. In instances where schools offered only informal or occasional lectures in aging, most administrators agreed that the organization of a strong course or courses was their ultimate goal in curriculum planning.

In addition to curricular issues, there are other aspects to consider. Recent medical and dental studies point to the lack of interest in and negative attitudes toward the elderly among both students and practitioners. Positive learning experiences for students and more faculty role models in clinical training programs need to be developed. The importance of developing positive attitudes toward the care of elderly persons is a prime educational need.

A further evidence of need in educational planning for geriatric patient care

is the fact that none of the 15 schools responding to the questionnaire cited the existence of programs for faculty in-service training. In planning such in-service activities, faculty qualifications and needs should be assessed.

Although much progress has been made in curricular development, the assignment at each institution of one or two faculty members with expertise in geriatric patient care and/or research is highly desirable. These faculty members could fulfill several roles:

- serve as the catalyst and facilitator for the further development of high quality instruction and research in gerontology and geriatric optometry, and
- develop an appreciation and concern for the special problems of caring for elderly patients.

A continuation and marked expansion of basic and clinical research as well as effective dissemination and careful application of the research findings is essential. The growing number of re-

search grant opportunities from such agencies as the federal Administration on Aging, the National Institute on Aging, and the National Eye Institute are encouraging signs. The existence of collaborative studies with allied disciplines is also an indication of the interest in research within this field.

The goal of expanding geriatric optometry programs in teaching, research and public service represents a positive force in optometric education. The results of the survey show a universal concern for curriculum development in geriatric optometry. This is another indication of the dynamic nature of optometric education in meeting the health care needs of the elder patient.

References

1. Beck JD, Ettinger RL, Jakobsen J: Teaching programs in geriatric dentistry: An international comparison. *Gerontology and Geriatric Education* 4(2): 37-49, 1983.
2. Butler, RN: The doctor and the aged patient. *Hospital Practice*: 102-103, March 1978.



Geriatric Optometry Programs of Promise

P A R T T W O

Pennsylvania College of Optometry

The Pennsylvania College of Optometry received a grant from the U.S. Department of Health and Human Services in 1979-80 to develop a curriculum in geriatrics for optometric students. The purpose of this grant was to identify, develop and integrate courses that should be a part of the optometric curriculum. This was an institutional effort in which input was sought from all didactic and clinical faculty, to determine what course contents in gerontology should be taught to optometry students. Topics of importance were identified, and circulated among the faculty. Topics that were not being covered were further separated into two categories—one that could be incorporated into the existing modules and the other, those that could not be a part of an existing course and which would be combined into an elective course.

The current gerontology curriculum begins during the second semester of the second year. Students are required to attend a two hour lecture followed by a two hour lab on examining the non-ambulatory elderly patient. During the third year students are provided a rotation through the Community Eye Care Services Program where they gain clinical experience by examining patients in both private and nursing homes. During the third and fourth years students rotate through The Eye Institute where approximately 15-20% of the patient population is elderly.

During the third and fourth years students are offered an elective course entitled "Optometrist and the Elderly." This course addresses the normal and abnormal, physical, physiological, biological, social, psychological and visual changes and the management of the elderly patient. The College also offers a residency in geriatric optometry—the first in the country—in collaboration with the V.A. Hospital, Vancouver, Washington.

It is hoped that the current gerontology program at the Pennsylvania College of Optometry can be expanded by making the elective course required and by tying up the remaining loose ends.

Satya B. Verma, O.D.

Director

Community Eye Care Service

"The material selected covers problems of adjustment to visual loss in the elderly patient, learning to recognize and appropriately respond to the depressed or confused elderly patient during the examination, and assisting the patient with information about community social service agencies that might be helpful to the patient."

State University of New York

Students at SUNY College of Optometry are provided with educational and patient care experience in geriatric optometry. These experiences are planned to provide students with a better understanding of the geriatric population. It is hoped that these experiences will result in more students, and ultimately, more optometrists being comfortable with the elderly, especially the frail elderly.

As a part of the course, "Psychodynamics of Patient Care," fourth year students are exposed to the more common bio-psychosocial issues that affect the elderly, and especially the impaired elderly. Information is provided about

the various social service and welfare agencies in the New York area, as well as information about obtaining this information nationwide.

Representatives from some of these agencies also are invited to the class to discuss the particular needs of the populations their agencies serve. Some of these speakers have included rehabilitation counselors and mobility instructors who work with the elderly; directors of senior citizen centers and settlement houses; directors of day treatment centers, nursing homes and inpatient rehabilitation centers; and clinical faculty with experience working with nursing home residents and other frail elderly populations.

Case material from patient records is also used for class discussion. The material selected covers problems of adjustment to visual loss in the elderly patient, learning to recognize and appropriately respond to the depressed or confused elderly patient during the examination, and assisting the patient with information about community social service agencies that might be helpful to the patient. The primary objective in selecting this case material is to expose the students to the range of problems they can expect to encounter in a private optometric practice.

Beyond this classroom experience, many third and fourth year students have an opportunity to participate in the weekly half-day vision screenings at various senior citizen centers throughout New York City. Students are exposed to the diversity of ethnic populations, given the opportunity to interact with senior citizens outside of the examination room setting, and have an increased opportunity—beyond their programmed clinical education—to sharpen diagnostic skills. In addition as schedules permit, students are invited to participate in the examinations of homebound elderly under the supervision of the staff optometrist.

The Social Service Department of the University Optometric Center, the clini-

cal facility of the college, is available to students for consultation regarding their patients, as well as for referral of those patients needing social work services. The availability of these services further enables students to consider the total needs of the elderly patient, not just their visual health needs.

Janice Krantz, M.S.W.
Director of Social Service

The University of Alabama at Birmingham School of Optometry

The University of Alabama at Birmingham School of Optometry offers instruction in Optometric Gerontology throughout its professional curriculum and at several levels of training. The concept of "well elders" is emphasized during UAB's lecture series in Geriatrics, a part of the third professional year curriculum. This point of view is presented in part to encourage students to re-evaluate stereotypical concepts which actually may be inadvertently reinforced elsewhere in the curriculum.

By discussing age related visual problems in epidemiological terms, for instance, students gain perspective on pathology which elsewhere is time and again described as "age related." Optometry students at UAB are encouraged to expect (statistically speaking) their older patients to be functioning at levels commensurate with their needs, and to recognize the possibility of age related pathology as an etiology when they are not so functioning. A multidisciplinary team of guest lecturers from fields such as psychology, sociology, geriatric medicine and social services combines efforts with the optometry faculty to address the special needs of older adults from a broad perspective. Through the lecture series in Geriatrics, the optometry faculty is able to coalesce concepts pertinent to the aging patient which also may be presented at various stages elsewhere in the curriculum.

Clinical experience in the care of older patients is available in several settings throughout the UAB School of Optometry curriculum. Foremost is a fourth year, ten week rotation through the school's Low Vision/Geriatrics Clinic. Although this clinic distinguishes between these two groups, it is well prepared to address overlap which may exist in these populations. Clinical instruction is provided and a resource coun-

selor is available to reinforce concepts emphasized in the lecture series. Additionally, geriatric patient encounters are readily available through Screening rotation, Community Health Services Clinic rotation (essentially an HMO setting) and Birmingham VA Medical Center rotation, each of which is a required fourth year rotation.

Advanced training opportunities include an affiliated residency program with the Birmingham VA Medical Center in Hospital-Based Geriatric Optometry as well as certification in geron-

"Our effort in the program is not to identify geriatrics as a "specialty"; our intention is to integrate the management of the older patient into the normal habits of the optometric clinician."

tology at both the graduate and undergraduate level through UAB's University College programs. Research activities in the field of aging are underway at several sites across UAB's campus. The School of Optometry maintains an affiliation with many of these sites. In particular, UAB's Center for Aging as well as the Birmingham VA Medical Center have on-going projects which involve School of Optometry affiliations. Dr. Cynthia Owsely is currently completing work on her NIH/NIA-funded grant on Spatial Vision and Aging at the School of Optometry.

As a member of the local aging network, the School of Optometry serves as a valuable resource for social service agencies in the area. In turn, membership in the local aging network provides

the School of Optometry with valuable resource contacts. During 1984, these affiliations were strengthened by participation in a New York Association for the Blind federally funded demonstration project entitled, "Visual Impairment and Aging: Targeting Resources for Consumers, Clinicians and the Aging Network."

Gary L. Mancil, O.D.
Geriatric Coordinator

University of Houston College of Optometry

The University of Houston College of Optometry offers a course, Rehabilitative Optometry I, which presents basic information on geriatric eye care to the third year student as a three unit lecture course. It is conducted in conjunction with a clinical rotation in the Geriatric Module. Although this is a separate clinical experience, the course and clinic present coordinated materials and experiences.

The content of the geriatric course is fairly standard and emphasizes information pertinent to the aging eye. Lecture material concerning the aging process also is included in the Rehabilitative Optometry III curriculum which occurs in the fourth professional year.

Rehabilitative Optometry II includes the development of an examination protocol for the older patient which is reinforced in the students' clinical rotation. The Director of the Geriatric Module gives these lectures to assure a high correlation between lecture and practice.

General aspects of aging and the aging eye are presented in the lectures with a concentration on the special optical problems faced by the older patient. Some primary care low vision management is presented at this time. The Geriatric Module has a Primary Care Low Vision Service to provide for the needs of the older patient beginning to experience low vision problems (20/25-20/50 vision which interferes with daily activities but doesn't require comprehensive low vision rehabilitative services). The remainder of the course concentrates on aging problems associated with Crystalline Lens, the Lids, Cataract Correcting, Retinal Degenerations, Corneal Problems and Vitreous Degenerations. The last lectures discuss ocular emergencies, pharmacology and the psycho-social aspects of dealing with the older patient.

An important aspect of the curriculum is the involvement of Dr. Louis Godio who teaches the course on Rehabilitative Optometry in the geriatric clinic. Likewise, Dr. Robert A. Browning, Director of the Geriatric Module, provides clinical lectures for the geriatric course. This results in a "practice what you preach" program of geriatric care. This is probably the most important part of the total program and the key to making students become involved in this type of special optometric care, without making it special. Our effort in the program is not to identify geriatrics as a "specialty"; our intention is to inte-

grate the management of the older patient into the normal habits of the optometric clinician. The problem with becoming a "specialty" is that some clinicians begin to think they cannot or do not want to do it.

There is some consideration and planning for a more specialized clinical service for those patients who are seventy years of age or older (this could be 60, 65 or 75 just as well until we have further experience). The concept is based on the belief that patients presented to the clinic at this age are more than likely not just refractive in nature. They will need some special optometric

services including extensive ocular health evaluations, counseling regarding negative findings of these evaluations, primary care low vision services, psycho-social services relating to family and home-life and the availability of rest periods, access for wheel chair and modifications for those needing such services. This will be complemented by a course in Gerontology which will concentrate on the aging process and the psycho-social needs of the person who is getting 'less young.'

*Randall T. Jose, O.D.
Coordinator, Rehabilitative
Optometry Tract* □



A Proposed Curriculum Model for Geriatric Optometry

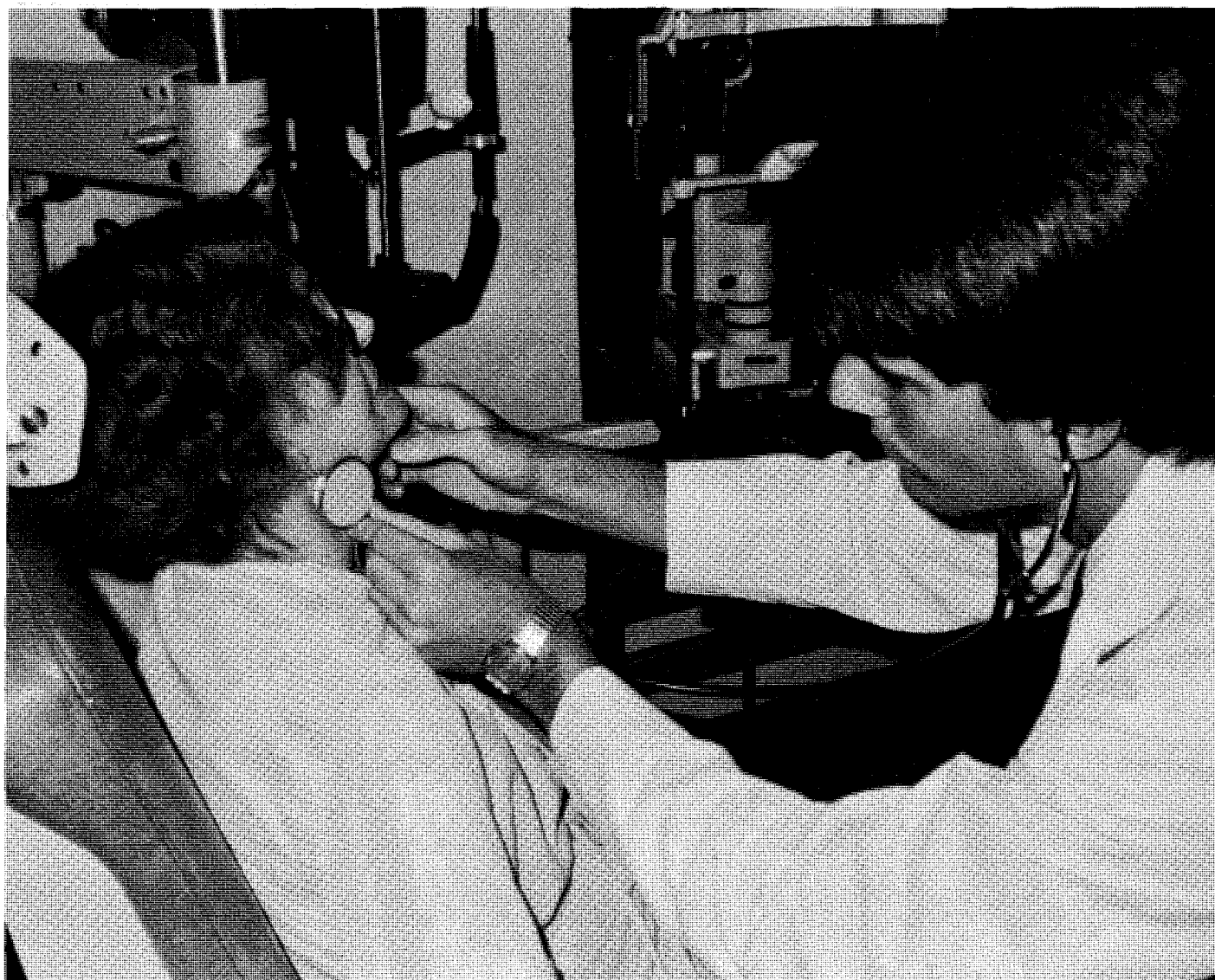
Albert A. Rosenbloom, O.D., M.A.

PART THREE

Introduction

The role of optometry in health care, the vitality of the profession of optometry and the health care delivered by the practitioners of optometry are functions of the scope and quality of optometric education.¹ The need for a current, problem-oriented approach to optometric education and the desire for greater educational consensus among the schools of optometry led ASCO's Council on Academic Affairs to appoint a Curriculum Committee whose purpose would be the formulation of a Curriculum Model. This model for an overall optometric curriculum was published in the Summer 1978 issue of the *Journal of Optometric Education* and was followed by later ASCO curriculum models for such specific areas as Pharmacology, Practice Management and Professional Development.

The challenge which currently faces the optometric profession and optometric schools in particular is how to train optometrists to be expert and comfortable in caring for elderly patients. Current thinking about geriatric optometry indicates that a number of the concepts within this area of specialization are common to the optometric curriculum in general. Yet the care of the elderly person has certain unique characteristics that must be understood. This care is different from that appropriate for



younger patients. The health problems of the aged are more complex; older persons are more likely than younger ones to suffer from multiple, chronic and interacting disease processes. Hospitalization is on the average longer and more costly. An elderly person's past health history may be quite lengthy, complicated and time consuming to amass and organize. Effective communication may be difficult. Physiological systems and sensory processes change with age. Normal age-related eye/vision changes occur that have functional implications. To be maximally effective, optometric treatment must be sensitive to these differences. Optometrists must know how to adapt standard testing methods and patient care management procedures to elderly persons. The health problems of the elderly often affect and are affected by their psycho-social and financial status. Thus, the optometrist must deal not only with these social factors but also with the strictly optometric aspects of patient care.

In recent years, optometry like other major health professions has recognized not only the demographic "imperative" but also the importance of developing programs in geriatric optometry whose goals are based on a definable body of knowledge that has both didactic and clinical components. The proposed curriculum model for geriatric optometry addresses itself to the role of the optometrist as a health care practitioner, a member of the health care team and a primary vision care provider.

Recognizing the need for a curriculum model in geriatric optometry, the writer prepared such a model to assist the various schools and colleges in planning and assessing their individual programs in geriatric optometry. Since optometric care of the elderly person requires consideration of social and psychological needs as well as the environment of the patient, optometrists must be as knowledgeable in the broader field of gerontology as they are in a mastery of the essential components of comprehensive optometric care.

This model attempts to respond to the following questions:

- What are the minimum key content areas of a geriatric curriculum?
- What values are essential in effective practice of geriatric optometry?
- What are the basic therapeutic modalities used in treatment regimens with older adults?

In the interest of establishing a common understanding, several definitions should be noted:

- Gerontology is the branch of knowledge dealing with aging and the problems of the aged.
- Geriatrics is the branch of health care that deals with the problems and diseases of old age and aging people. (Professional care of the elderly should also include a consideration of social, psychological and physical problems.)
- Geriatric Optometry is that component of geriatrics related to the optometric care of elderly persons.

PROPOSED CURRICULUM MODEL— GERIATRIC OPTOMETRY

Purpose: To establish guidelines for instruction in geriatric optometry.

Course Objectives: The proposed objectives have both didactic and clinical components. There is specific knowledge and understanding to be achieved; there are specialized clinical skills and abilities to be acquired.

I. To increase the students' knowledge and understanding of:

- The process of aging from a demographic and epidemiological frame of reference.
- A contemporary, integrated view of the older person through an understanding of the developmental characteristics of the life span from early-, mid- and late-life role transitions.
- The biological, physiological, psychological and sociological aspects of aging and their interaction with optometric intervention with the aging patient.
- Normal age-related eye/vision changes and their functional implications.
- The common systemic and ocular diseases associated with aging, their systemic and functional implications.
- The systemic and ocular effects of systemic medications and ocular drugs from a mechanistic, diagnostic, and therapeutic standpoint.
- The concepts and principles of comprehensive, continuing care of older persons and the role of the optometrist as a participant in the interdisciplinary team approach.
- The provision of services to the elderly by both governmental

and private agencies and by legislation covering care or affecting care.

- Post-graduate and continuing education study opportunities for further knowledge in the field of aging.
- Current, relevant research studies and findings in the field of aging.

II. To develop the students' expertise and clinical skills required for:

- Mastery of the techniques of optometric examination and understanding of clinical approaches adapted to the assessment and management of elderly patients.
- Management of patients having visual-perceptual losses and decrements, including the assessment of the need for referral and consultation with other health care providers.
- Acquisition of the special clinical skills and understandings needed for the care of the aphakic patient as well as the frail elderly and invalid, home-bound patient.
- Analysis, evaluation and advisement on problems of the visual environment.

ESSENTIAL CURRICULAR ELEMENTS: INSTRUCTIONAL COMPONENTS

A review of current texts in the field of gerontology as well as instructional programs in optometry and allied health care fields emphasizes the importance of considering the following topics. These curricular elements may be included within a specific course and/or courses whose content may include selected subject areas.

I. Sociological Aspects of Aging

- Historic View of Status and Role of Elderly Persons
- Demographic Profile
- Diversity of the Elderly
- Ageism, i.e., deliberate stereotyping of the elderly
- Myths and Realities of Aging
- Activity—Disengagement Theories

II. Concept of Healthy Aging

III. Physical and Physiological Changes Associated with Aging

- Biological Theories of Aging
- Continuum of Health and Levels of Impairment
- Physiological Changes in Aging:
 - Cardiovascular System
 - Respiratory System
 - Genitourinary System
 - Musculoskeletal System
 - Endocrine and Metabolic Changes
 - Neurology
 - Integument (skin)
 - Alterations in Sensory Perception
 - Nutritional Needs
 - Rest and Sleep Patterns
- Dental Health
- Podiatric Health

IV. Sociological Aspects of Aging

- Theories of Aging
- Family Structure
- Related Aspects (leisure, housing, transportation)

V. Psychological and Behavioral Aspects of Aging

- Life Transitions and Role Changes
- Theories of Adjustment
- Cognitive Function
- Cognitive Dysfunction (dementia, chronic and acute brain syndromes)
- Psychomotor Performance
- Perceptual Change
- Socialization, Attitudes and Values
- Personality Factors
- Crisis, Stress, Depression
- Affective Disorders (depression, mania, anxiety)
- Approaches to Patient Management

VI. Community Health Issues in Care of the Elderly Person

- Quantity, Quality and Availability of Health Care
- Problems in Geriatric Health Care Delivery
- Design of Geriatric Screening Programs
- Provision of Services by Government and Private Agencies: organization, delivery, financing and evaluation of health care
- Nursing Home Organization, Administration and Social Policy
- Community Health Information and Education
- Mutual Self-Help Groups for Older Persons
- Guidelines for Helping Elderly Persons in the Home and in the Community

VII. Economic and Legal Considerations in Care of the Elderly Person

- Public Policy Issues
- Legislation Covering Health Care or Affecting Care
- Economics of Health Care—Medicare and Medicaid
- Economic Status of the Elderly
- Social Security and Supplemental Security Income

- The Medical Care Needs of the Elderly and their Use of Health Services
- Legal Aid and Advocacy

VIII. Drug Use and Abuse in the Elderly

- Pharmacokinetics: Absorption, Distribution, Metabolism, Excretion
- Systemic and Ocular Effects of Medications
- Prescription Drugs and Over-the-Counter Medications
- Patient Education and Compliance
- Substance Abuse

IX. Normal Age-Related Age/Vision Changes and their Functional Implications

- External and Internal Eye Changes and their Functional Implications
- Refractive Status: hyperopia, myopia, astigmatism, presbyopia, increases in aberrations, etc.
- Ocular Motility
- Accomodative-Convergence Relationships
- Amplitude of Accommodation
- Sensory Fusion Problems
- Contrast Sensitivity Function
- Dark Adaptation
- Color Vision
- Other perceptual responses including changes in response to luminance levels

XI. Specific Considerations in Examining the Elderly Patient

- Professional Responsibilities in Geriatric Patient Care
 - New Technology in Clinical Eye Care
 - Examination and Management of "Normal" Ocular and Vision Changes
 - Modifications in Examination Techniques and Procedures for Comprehensive Care
 - Generic Problems in the Examination and Management of the Elder Person
- The Doctor-Patient Relationship
 - Communication Techniques
 - Decreases in Patient Response Time and Sensitivity
 - Problems of Therapy Compliance
 - Performance Monitoring, Patient Education and Continuing Care
- Special Considerations in Optometric Care of the Aging
 - Problem Assessment and Patient Management: eye/vision, physical, psychological, social, patient profile and resources
 - Analysis, Evaluation and Management of Changing Visual Tasks
 - Special Frame and Lens Design Considerations
 - Environmental Factors: Physical environment; Social environment; Illumination, glare, color contrast, etc.
 - Examination and Management of the Aphakic Patient
 - Problems in the Care and Management of the Elderly Contact Lens Patient
 - Examination and Management of Patients with Vision Impairments: Low Vision; Functional/Rehabilitation Therapy
 - Evaluation and Care of the Institutionalized including the Frail Elderly and Home-Bound Patient
- Utilization of Social/Community Services and Consultation/Coordination with other Health Care Providers

XII. Research in Aging and in Vision Problems of Elderly Persons

- Models for Service Delivery
- Evaluation of Care and Effects of Care
- Sources of Information

Student Project Team Promotes Membership in AOA

The Student Membership Project Team of the American Optometric Association will make a presentation on behalf of organized optometry at three schools of optometry during October. The presentation will be made to the optometry students and spouses at Pennsylvania College of Optometry, Pacific University, and the University of California-Berkeley.

The project team program is designed to encourage students to become involved in the organizations that represent their future profession and to become aware of the important issues facing optometry.

Volunteers representing the AOA, the local and state associations, the auxiliary, and the school will take part in the program. There will be a short slide presentation about the AOA. Following the slide show will be a period of group discussions among the students and spouses, and the doctors, focusing on issues and problems that are confronting optometry today. The evening will conclude with a reception for all attendees.

Representatives of the AOA Student Membership Project Team have visited six schools of optometry, promoting membership in AOA, over a period of two years.

AOF Awards Research Fellowships

Fourteen future optometric educators have been awarded William C. Ezell, O.D. Research Fellowships by the American Optometric Foundation for the coming academic year. The recipients, their schools, and research topics are:

University of California/Berkeley

- Joseph A. Bonnanno, O.D., "The Role of Limbal Oxygen Supply on Corneal Swelling,"
- Peter Howarth, O.D., "Possible Effects of High Frequency Luminance Flicker on the Response of the Pupil,"
- Doris Lin, O.D., "Oxygen Tension Under the Extended Wear Contact Lens When the Eye is Closed,"
- Deborah Ann Orel, "A Reliability and Validity Study of the Subjective and Electrophysiological Measures of Visual Acuity in Normal and Amblyopic Adults,"

- Thomas W. Raasch, O.D., "Spatial Vision and Visual Acuity,"

- Brooke Scheffrin, O.D., "The Effects of Diabetic Retinopathy on the Red-Green and Blue-Yellow,"

- Wayne A. Verdon, O.D., "Psychophysical Investigation of Trichromatic and Color Defective Humans,"

University of Houston

- Michael Kalloniatis, "Acquired Color Vision Defects,"

- Yen Lee Yap, O.D., "The Mechanisms of Peripheral Vision,"

Indiana University

- Douglas K. Penisten, O.D., "Neural Coding of Motion in Fly Visual Neurons,"

- Michael K. Smolek, "Double Exposure Holographic Interferometry,"

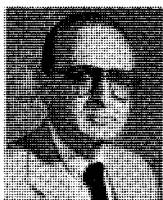
The Ohio State University

- Barbara A. Fink, O.D., "The Effect of the Peripheral Curve and Various other Contact Lens Parameters in the Tear Pump Mechanism and Their Effect on the Oxygen Uptake of the Cornea,"

- William R. McLaughlin, O.D., "Recovery in Corneal Endothelial Regularity in Polymethacrylate Contact Lens Wearers,"

- William T. Reindel, O.D., "Corneal Physiological Response to Contact Lenses in an Elderly Population."

These scholars will receive support from AOF throughout the current academic year. Their William C. Ezell, O.D. Fellowship Awards are funded by donations made to the AOF. Contributions from corporations, optometrists and others interested in furthering the cause of vision research may be sent to: AOF, 684 Whitehead Road, Trenton, NJ 08648.



Dr. Sheldon M. Ebenholtz

Dr. Sheldon M. Ebenholtz to Join SUNY

Sheldon M. Ebenholtz, Ph.D., distinguished scientist and educator at the University of Wisconsin, will join the Schnurmacher Institute for Vision Research at SUNY College of Optometry in the Spring. The announcement was

made by Dr. Edward R. Johnston, College President.

"I am excited about what Dr. Ebenholtz can bring to our institution and I look forward to his future contributions," said Dr. Johnston.

Professor Ebenholtz received his M.A. and Ph.D. degrees in psychology from the New School for Social Research. He is a Fellow of the American Association for the Advancement of Science, American Psychological Association and American Academy of Optometry. He is also a member of the National Academy of Sciences, National Research Council's Committee on Vision. His research in accommodation and perceptual adaptation is funded by the National Science Foundation and the National Eye Institute.

The Schnurmacher Institute, founded in 1983, is composed of 23 scientists who are researching the complex human visual system.

Dr. Barbara Gillam Awarded Guggenheim Fellowship

Dr. Barbara Gillam, professor of Vision Sciences at the State University of New York/State College of Optometry, was recently awarded a Guggenheim Fellowship for her research in perceptual theory and illusions. Dr. Gillam was one of 270 Fellows selected from more than 3,500 scholars, scientists and artists in the 61st annual competition.

The Guggenheim Fellowship will enable Dr. Gillam to devote the coming academic year to research on geometrical optical illusions.

An honors graduate of the University of Sydney, Australia, Dr. Gillam received her Ph.D. from the Australian National University. She is the recipient of numerous grants from the National Institute of Mental Health, the National Science Foundation and the New York State Health Research Council.

Correction

In the article, "Academic Support Services: Effectiveness of Tutoring Evaluated," published in the Summer 1985 issue, figures 2 and 3 (pg. 19) were reversed. JOE regrets the error.

Utilization of Course Syllabi and Behavioral Objectives

Brian W. Caden, O.D., M.A.

In July, 1977, the Curriculum Committee of the ASCO Council on Academic Affairs presented a report to the Board of Directors. This was a major undertaking that represented the efforts of many dedicated people. The final outcome of their work was not a policy statement, but a working document from which each individual school and college of optometry could borrow.

It was the task of the committee at that time to organize and develop an optometric curriculum that would be responsive to the expressed desires and needs in optometry and yet be sensitive to issues that were external to optometry.

As Dr. Jess Boyd Eskridge, Chairman of the Curriculum Committee, said in his report, "The scope and quality of optometric education is determined to a great extent by the optometric curriculum. The design of individual courses, course sequence and clinical programs is best left to the individual schools and colleges of optometry since such design will be significantly influenced by each school's educational and professional philosophy and by its faculty and facilities. Flexibility in curriculum design must be preserved so as to take advantage of local strengths, interests and opportunities."¹

Educational Objectives

Once the educational objectives of an institution have been adopted, the departments and teachers should formulate course objectives which are consistent with institutional educational objectives. This provides important prac-

tical input to the process and is one of the most effective means of insuring the active cooperation of the teaching staff in implementing and following stated educational objectives. Through this process the participants are encouraged to examine the contributions of their courses to the general program objectives and at the same time they are likely to sharpen their own objectives.

When a faculty member takes an active part in developing the course objectives, these statements acquire a personal meaning and are likely to enter consciously into the faculty member's teaching. Moreover, active participation in such an exercise affords the faculty member an excellent opportunity to critically examine personal ideas and practices.

Curriculum review and development should be a continuous process with year to year changes being made to accommodate the progress of knowledge, the introduction and expansion of new areas of interest and the replacement of outmoded thoughts by new. This annual review of curriculum can be accomplished by administrators, teachers and students through course syllabi and their stated behavioral objectives.

Syllabus Development

Currently, most course syllabi written by faculty lack uniformity in presentation and are inadequate in providing a sound basis for curriculum review and development. In order that course syllabi provide adequate information for curriculum review and development by both faculty and administrators, the following format for preparing and standardizing course syllabi is proposed. A course syllabus should consist of the following nine items: First, a description of

the course should be stated briefly, but very concisely in paragraph fashion describing course hours and format, purposes and essence of the course. The course description should clearly show how it relates to the rest of the curriculum and should parallel and amplify the catalogue description.

Second, the general goals of the course should be itemized as narrative statements which indicate the long-range purposes of the course and how they relate to the rest of the curriculum and the institution.

Third, the prerequisites for the course should be stated. This should include a listing of other courses completed and minimum entry knowledge, skills and/or attitudes needed to take the present course.

Fourth, topic listings and sequences of presentations should be stated in outline form. It should include the following four items:

- 1) the unit or module topics;
- 2) the titles for the learning experiences (lessons, labs, lectures, etc.);
- 3) special and/or optional learning experiences; and
- 4) if appropriate, each session should be outlined to the extent that all primary topics for a session are identified.

The outline should be concise and it should enable the reader to briefly gain insight into the content and scope of the presentation. For example, this would not be an acceptable format: "Session 2: The health history in treatment planning." An acceptable approach would be the following:

"Session 2:A. The health history in treatment planning."

- 1) Purposes of a history in relation to treatment and goals.
- 2) Types of a history.
- 3) Timing of a history.

Brian W. Caden, O.D., M.A., is associate professor of primary care and optometric methods at the Illinois College of Optometry.

4) Art of communication and interrogation.

5) Methodologies to beginning and ending a health history.

Fifth, the procedures for course evaluation should be stated. The manner and mechanism by which a student will be evaluated should be briefly described. The basis and framework for a final grade should be indicated.

Sixth, a complete bibliography should be presented including the following:

- 1) Texts, both required and recommended;
- 2) reserve reading lists;
- 3) non-print references and aids;
- 4) required equipment and materials.

Seventh, course and/or clinical internship objectives should be stated. These objectives should be defined in behavioral terms with all domains of learning included if possible. (See discussion later in text.)

Eighth, a calendar format, if appropriate, should be followed. This would include class schedule by date and/or schedule of class presentations and other non-traditional learning activities which may fall into a calendar format.

Ninth, any special comments or information unique to the course or department such as attendance policy, special activities, etc., should be stated in the syllabus.

Finally, each department or division should have a standard format for the cover page listing such items as the title of the course, course number, instructor, etc.

Writing Behavioral Objectives

As mentioned previously under item seven of an ideal course syllabus, course objectives should be stated in behavioral terms. This sounds like a reasonable request of an instructor in preparing a course syllabus; however, the actual task of writing a clear, meaningful behavioral objective is a very difficult one even for professional educators.

In its very broadest sense, a learning objective is a statement of a proposed change. This change is expected to occur in the thoughts, actions, and feelings of students under the teacher's guidance as a result of some educational or training experience. Many times objectives are written as an aim or goal of a specific course. However, an aim or goal is only a general statement of intent. It has little precision or direc-

tion and is not especially helpful to the instructor especially when trying to decide which teaching strategy should be used or how evaluation will take place.

A behavioral objective, on the other hand, is very much more precise and specific. As Mager says, "A meaningfully stated objective is one that succeeds in communicating your intent. The best statement is the one that excludes the greatest number of possible alternatives to your goal."²

According to Bloom's *Taxonomy of Educational Objectives*,³ a large number of objectives can be classified under

"The actual task of writing a clear, meaningful behavioral objective is a very difficult one even for professional educators."

three main parts or domains of learning. They are the cognitive, affective and psychomotor. Bloom states that, "The cognitive domain includes those objectives which deal with the recall or recognition of knowledge and the development of intellectual abilities and skills." The affective domain, on the other hand, includes those objectives which deal with the attitudes and values, feelings and emotions of the learning situation. The third domain, the psychomotor, deals with manipulative, motor or neuromuscular skills.

Bloom organized his taxonomy of cognitive and affective objectives into six major classes in hierarchical order. In the cognitive domain they are the following:

- 1) knowledge;
- 2) comprehension;
- 3) application;
- 4) analysis;
- 5) synthesis;
- 6) evaluation.

Corresponding to these in the affective domain are the following:

- 1) receiving;
- 2) responding;
- 3) valuing;
- 4) conceptualization;
- 5) organization.

In working with this taxonomy the instructor preparing course syllabi and behavioral objectives will be able to select a range of objectives and appropriate test questions. Such an organization also will insure a proper balance between the objectives presented and test questions for evaluation of performance.

As stated before, a behavioral objective should be clearly written and free from ambiguity. In order that it be of value to both the student and the instructor, the objective should possess certain characteristics. It should contain a statement about the performance or behavior required of the student. It should clearly define the conditions under which mastery will be observed. Finally, it should state the standards to be reached by the student.

Once the prerequisites of behavioral objectives are understood, then clear behavioral objectives can be written. Basically, there are two methods of writing behavioral objectives. One type is a cognitive and affective objective designed by Mager. It consists of the following three parts:

- 1) identify the terminal behavior by name;
- 2) describe the important conditions under which the behavior will be expected to occur;
- 3) specify the criteria of acceptable performance by describing how well the learner must perform to be considered acceptable.

An example of a typical Mager-type objective in the case of students learning pre-clinic examination procedures follows. The student will:

- 1) measure aided and unaided visual acuity at farpoint and nearpoint;
- 2) with standard Snellen and nearpoint charts on a fellow classmate;
- 3) without aid from the instructor and within a time period not exceeding five minutes.

The second type of objective is a psychomotor objective designed by Robert Miller. It consists of the following five parts:

- 1) an indicator on which the activity-relevant indication appears;
- 2) the cue which will elicit a response;
- 3) the objects to be activated;

- 4) the manipulation to be made;
- 5) the indication that the response by the student was adequate.

An example of a Miller-type objective would be the following:

- 1) given a pair of single vision lenses in a frame;
- 2) told to neutralize both the right and left lens, the student will;
- 3) measure the lenses with a lensometer;
- 4) write the prescription for both lenses in minus cylinder form;
- 5) to an accuracy of within $\pm .12D$ for sphere and cylinder and within two degrees for axis.

Discussion

As mentioned previously, curriculum review can be greatly aided through the evaluation of the course syllabus and its

institutional objectives. With shifts in educational philosophy profoundly influencing our educational objectives, course syllabi must be consulted to see whether students are being encouraged to carry on independent and self-directed study.

As Bloom has stated, "Objectives are not only the goals towards which the curriculum is shaped and towards which instruction is guided, but they are also the goals to provide the detailed specification for the construction and use of evaluative techniques."⁴

Thus, the course syllabi and their behavioral objectives should yield vital information as to how evaluation takes place. Faculty must formulate evaluation procedures that are broader, more diversified and of increasing validity. Course syllabi and behavioral objectives

objectives does not necessarily mean that there will be an overall improvement in the quality of education, nor in the end product of that educational experience. As Dr. Paul Abplanalp recently stated, "The most severe limit is that objectives don't tell a professor how to teach, nor do they tell a student how to learn."⁵

However, the utilization of standardized course syllabi and the writing of behavioral objectives are a starting point that will hopefully give each school and college of optometry a set of standards for improving the quality of optometric education and a method for evaluation of those students who will be delivering optometric care after graduation.

In addition to the classroom and laboratory situation, the one area that particularly lends itself to the writing of clear behavioral objectives is clinical instruction. As Dr. Abplanalp states in his article, "The identification of specific behavioral objectives by which a minimum acceptable level of competence demanded of a practicing optometrist can be specified will provide optometric educators with an important advantage. Armed with such objectives, the content of the curriculum can be evaluated and exactly how much time and resources must be devoted to achieve this level can be identified."⁶

Finally, the writing of standardized course syllabi and behavioral objectives gives the student a clear perspective of how evaluation will take place. It also gives the students a standard, both didactically and clinically, against which they may compare themselves and judge the adequacy of work performed. □

"The development process for syllabi and objectives requires a great deal of commitment and acceptance, both in time and energy from administrators and faculty."

behavioral objectives. For this evaluation to take place at a particular school or college of optometry, the standardization of course syllabi and writing of behavioral objectives must be done by all faculty. Once this has been accomplished by the faculty and administration, these course syllabi and behavioral objectives should ideally provide information as to what knowledge is to be acquired, skills to be developed, ideas to be espoused and traits of character to be achieved. Properly written course syllabi and their behavioral objectives should provide information as to the continuity and logical sequencing of courses and a reduction of unplanned redundancy.

These materials should provide information as to what learning experiences are being provided and whether these are the best methods for attaining stated

must emphasize critical thinking rather than rote memory of details. They must encourage independent study and educational experimentation if faculty are to evaluate the quality of student performance in the basic and applied aspects of visual science.

Conclusion

The writing of clearly stated behavioral objectives within standardized course syllabi is certainly not an easy task. The existence of such ideal course documentation is probably variable among the schools and colleges of optometry.

The development process for syllabi and objectives requires a great deal of commitment and acceptance, both in time and energy from administrators and faculty. The writing of behavioral

References

1. Eskridge JB: Optometry curriculum model: a report of the curriculum committee of the ASCO Council on academic affairs, J Optom Educ 1978; 4(1):11-22.
2. Mager RF: *Preparing Instructional Objectives*. Belmont, Calif., Fearon, 1971, p. 10.
3. Bloom BS (ed): *Taxonomy of Educational Objectives Handbook I: Cognitive Domain*. New York, David McKay Co., Inc., 1956, p. 7.
4. Bloom BS (ed): *Taxonomy of Educational Objectives Handbook I: Cognitive Domain*. New York, David McKay Co., Inc., 1956, p. 27.
5. Abplanalp P: Behavioral objectives: a means to establish profession-wide clinical performance standards, J Optom Educ 8(2): 7-9, February 1982.
6. Abplanalp P: Behavioral objectives: a means to establish profession-wide clinical performance standards, J Optom Educ 8(2): 7-9, February 1982.

Postdoctoral Applications

The Division of Research Grants, NIH, has established new deadlines for receipt of National Research Service Award (NRSA) Individual Postdoctoral Fellowship Applications (F32s). Beginning in 1986, the receipt dates for these applications will be January 10, May 10, and September 10. All prospective applicants for NEI-supported NRSA fellowships should have "letters of reference" sent to the NEI as soon as possible. Letters should be sent to Dr. Catherine Henley, NEI Review Office, Building 31/Room 6A06, Bethesda, Maryland 20892 (telephone: 301/496-5561). Additional information on the NEI research training program may be obtained by calling Ms. Chris Leinneweber, Grants Management Specialist, at 301/496-5884, or Dr. Israel Goldberg, Research Training Officer, at 301/496-5983.

Research Optometrist

The State University of New York College of Optometry seeks an experienced full-time clinical faculty member to conduct clinical trials research and/or manage prospective studies in several of the following areas of functional vision: accommodation, oculomotor function, binocular vision, perception, reading and learning. There are also opportunities for working in the optometry clinic and for membership in the Schnurmacher Institute for Vision Research.

Qualifications for the position include an O.D. degree and a record of conducting clinical trials research. An advanced research degree and a demonstrated ability to obtain outside funding for research are desirable. Rank and salary for the position are open, and will depend on the applicant's qualifications and experience. A vita and a letter describing research plans should be received by December 31, 1985.

Applicants should write to:

Dr. Leonard Press, Chairperson, Search Committee
State College of Optometry—SUNY
100 East 24th Street
New York, New York 10010

Other members of the Committee are Drs. Harold Solan, Nathan Flax, Kenneth Ciuffreda and Hal Sedgwick. EEO/AA

Ocular Disease—Detection, Diagnosis, and Treatment, Jack E. Terry, M.S., O.D., ed., and eight contributors, Charles C. Thomas, Springfield, Ill., 1984, 759 pp., illus., hardbound, \$59.75.

Written by clinical educators, *Ocular Disease* is an outstanding representation of the current state of the art of primary eye care.

The authors discuss pharmacology extensively in the introduction. They then give detailed descriptions of the conduct and interpretation of all the techniques necessary to properly diagnose and manage eye diseases in the out-patient setting. The procedures covered are those routinely used in the office as well as more advanced tests such as electrodiagnostic, ultrasound, x-ray, and laboratory studies. Finally, the text presents discussion of pharmacological therapeutics for commonly presenting eye diseases.

Ocular Disease is significant for its clear and detailed descriptions of out-patient management procedures which are cohesively packaged in one comprehensive volume. It will make an ideal standard reference for the clinician and should be required reading for optometry students.

VCTS System for Clinical Contrast Sensitivity Determination, Vistech Consultants, Inc., 1372 N. Fairchild Rd., Dayton, Ohio 45432, 513-426-4822, 800-VISTECH, includes: 3 different viewing charts, recording and plotting forms, normative overlay, and 1 light meter, \$349 + \$5 P + H for 18" viewing distance, \$429 + \$10 P + H for 10' viewing distance, \$699 for both systems.

The VCTS is a system for making clinical determinations of contrast sensitivity. The recent development of this system parallels the many current research articles on detecting and monitoring eye diseases by using the contrast sensitivity function (CSF). The VCTS system uses charts printed with sinusoidal gratings which are read in a manner similar to a snellen chart to quickly produce a CSF.

The VCTS is available in 10' and 18" viewing distance format. Each system comes with three different grating charts to prevent memorization. Accompanying the charts are recording forms, CSF plotting charts, and a normative overlay for interpretation. Also provided is a light meter, since proper performance is critically related to appropriate illumination calibration.

The VCTS was used by this reviewer on several normal observers with apparently good results. The most difficult part was setting up the lighting. Taking the measurement and producing the CSF plot was accomplished with a cooperative patient in under a minute. The plot obtained was precisely within the norms provided. The VCTS

system has been critically compared to a more involved video display system.*

While much more research needs to be done on the proper application of CSF testing to clinical practice, it is important to have practical systems for clinical use. The VCTS is one method which can be employed to measure the CSF without resorting to sophisticated and time consuming television display systems.

*Ginsburg, A.P., A New Contrast Sensitivity Vision Test Chart, *Am. J. Optom. & Physiol. Optics* 61:403-7, 1984.

Ophthalmic Lasers: Current Clinical Uses, Wayne F. March, ed., Charles B. Slack, Inc., Thorofare, New Jersey, 1984, 302 pp., hardbound, \$60.00

It is a sobering fact that as short a time as 16 or 17 years ago lasers were not used in ophthalmology. Since the time that Dr. Meyer-Schwickerath recognized that the properties of the laser were ideal for ophthalmic applications, the ruby, He Ne, Co₂, argon, erbium, krypton and YAG lasers have been developed and taken their specialized places in ocular therapy.

Ophthalmic Lasers, written by thirty contributing authors, and covering nearly all aspects of ophthalmic lasers, consists of twenty-three chapters, including a syllabus, a glossary and an index. The book is lavishly illustrated with photographs and line drawings which provide excellent additional information to the text. The syllabus provides a concise outline of the different ophthalmic procedures which may be accomplished using the various types of lasers. The glossary gives concise definitions of a limited list of words or terms which are peculiar to the laser and that the reader may need for reference as progress is made in reading the book. Finally, the book covers xenon photocoagulation and the present indications for its use.

The text is very readable and, in fact, is so interesting that it is difficult to lay down prior to reading the entire length. The material covers a wide range of subjects from the basic or fundamental concepts of the operation of a laser to precise step-by-step instructions in the use of the laser in ophthalmic applications. The ophthalmic procedures included within the text are posterior capsulotomies, peripheral iridectomies, ocular histoplasmosis, diabetic retinopathy, trabeculoplasty and the treatment of choroidal melanomas. In addition, there is an introduction to the erbium and krypton lasers with rationale for present uses and a prediction for future uses.

Dr. Meyer-Schwickerath presents a short personal history of the development of ocular photocoagulation. This was of particular interest to me because the xenon photo-

coagulator was the basis for most retinal lesion research in the 1950's and 1960's. One hesitates to write a review of the book since the foreword provides an excellent summary. I feel that the book is a must for anyone interested in the field of ophthalmic lasers and especially for those practitioners who wish to stay up-to-date on the latest procedures. It is a must for the practitioner who wishes to be able to discuss the intricacies of laser techniques with patients who may have been advised that laser application is necessary.

Guest Reviewer: Donald G. Pitts, O.D., PH.D., University of Houston College of Optometry.

The Nd-YAG Laser in Ophthalmology—Principles and Clinical Applications of Photodisruption, R.F. Steinert, M.D., and C.A. Puliafito, M.D., W.B. Saunders Company, Philadelphia, PA, 1985, 154 pp., 206 illus., 16 color plates, \$40.00.

This book is an excellent introduction to the ophthalmic uses of the Nd-YAG laser. It is well-written, very practical, and clinically relevant throughout. In addition, it is well illustrated with figures, tables, and photographs.

The book is divided into two sections. The first section, entitled "Principles," lays a basis for understanding laser therapy in general and then focuses on the Nd-YAG laser. After a brief historical introduction to ocular laser phototherapy, the authors discuss the fundamentals of lasers and laser light. They then present a well-written explanation of optical breakdown, plasma formation, and photodisruption. A chapter on laser-tissue interactions is included with a discussion of damage mechanisms in clinical therapeutic applications. A separate chapter on instrumentation provides an understanding of the principles and applications of laser systems design. This forms a basis for rational comparison, purchase, and use of the Nd-YAG laser systems.

The second section of the book, entitled "Applications," is devoted to clinical uses of the Nd-YAG laser. Included are chapters covering posterior capsulotomy, pupillary membranectomy, iridectomy, coreoplasty, synechialysis, anterior vitreolysis, anterior capsulotomy, posterior segment vitreolysis, and other applications of the Nd-YAG laser. After an introduction including a very brief literature review, each technique is broken down into a section on patient preparation, procedure, and postoperative care. Every chapter provides an easy-to-follow cookbook approach to the technique. In addition, the text is supplemented with pre- and post-operative photographs with arrows highlighting important features. Line drawings and tables also are used effectively.

This book is highly recommended for the optometrist who wants to develop both a rational understanding of Nd-YAG laser therapy and a basis for intelligent referral and follow-up of patients for Nd-YAG laser therapy.

Guest Reviewer: Charles Wormington, Ph.D., O.D., Pennsylvania College of Optometry.

The Surgeon's Guide to Intraocular Lens Implantation. H.M. Clayman, M.D., Slack, Inc., Thorofare, NJ 1985, 176 pp., 132 illus., \$49.50.

The post-operative evaluation and management of the pseudo-phakic patient is

rapidly becoming an integral part of primary care optometry. For the optometrist interested in the expanding role of eye care, *The Surgeon's Guide to Intraocular Lens Implantation* is an excellent source of information on implants.

Neatly divided into eleven short, easy-to-read chapters, this guide begins with a fascinating historical perspective of implantation (did you know that the first implant was attempted in the mid-1760's?). The reader is then guided through the various techniques of cataract extraction, the rise and fall of iris-fixated intraocular lenses, anterior and posterior chamber implants, and post-surgical complications.

The "guide" contains over one-hundred

good quality black and white photographs and thirty fair B & W illustrations.

A few of the chapters may be a little too detailed concerning such issues as the chemical nature of various lens types; however, Clayman generally renders a no-nonsense approach to the study of implantation.

The Surgeon's Guide to Intraocular Lens Implantation is a concise, informative text which presents an excellent introduction to intraocular lens implantation for all students of optometry, and for all optometrists interested in the expanded role of primary care optometry.

Guest Reviewer: Bruce G. Muchnick, O.D., Pennsylvania College of Optometry.

ABSTRACTS

Robert Rosenberg, M.S., O.D.

Analytic Thinking: Educating Students for the Practice of Modern Medicine. Boring, J.R., et al. J. Med. Educ. 59(11):875-80, 1984.

The authors describe one response to the problem of the ever expanding data base in health care and attempts to prepare students to cope with it while in school and in future years. The parallel to optometry and optometric education is glaring. As we face our expanding knowledge base in areas traditional in optometry we must also cope with totally new fields of practice such as diagnostic and therapeutic drugs, problems of management of systemic disease, analysis of physiological test, and so on.

The result of a new curricular element, Analytic Thinking, is described and discussed and bears reading by optometric educators at this time.

Assessment by Attending Physicians of a Seminar Method to Improve Clinical Teaching. Skeff, K.M. et al. J. Med. Educ. 59(12):944-50, 1984.

High levels of performance in clinical teaching are necessary if our educational process is to be successful in influencing students to behave appropriately both cognitively and affectively. It has been said by many and believed by most that the clinical teacher is the strongest influence on our graduates. The authors of this article describe concrete programs for the assessment of one method of training clinical teachers and in the process bring the training program itself to the reader's attention. The results are both an improvement in clinical teaching and feelings of accomplishment and satisfaction on the part of the teachers. It also describes a very practical method for approaching improvement in clinical teaching and includes a useful bibliography.

Comparison of Intraining Evaluation with Tests of Clinical Ability in Medical Students. Ginsburg, A.D. J. Med. Educ. 60(1):29-36, 1985.

The author set out to compare the various pre-clinical, clinical, oral and written (objectively scored) instruments for the evaluation of medical students and found a disturbingly small or absent correlation among measures. He suggests several hypotheses to account for this, only the least of which is the invalidity of the measures. Rather, he discusses the question of which side of student behavior is being examined and the article further suggests (a) the need for multiple measures of performance to predict clinical competence and (b) the need for greater definition and structure in the process.

Effects of Lecture Information Density on Medical Student Achievement. Russell, I. John, et al. J. Med. Educ. 59(1):881-9, 1984.

What are the effects of dispensing more and more information from the lecture platform? Is it constructive to package more facts into our lecture presentation in order to cope with the knowledge explosion in vision care?

If the conclusions of these authors are valid, we had best turn to other methods of coping with the task of educating our students for practice in the modern world. Their conclusions are that increasing information density actually reduces retention due to an effect similar to the masking effect of temporally sequential visual stimuli. The suggestion again is that "more" may be "less" and the answer is different learning opportunities rather than more of the same.

Graduate Medical Education and the Law. Grieger, C.H., et al. J. Med. Educ. 59(8):8643-8, 1984.

Shakespeare suggested that ridding the world of lawyers was a noble goal. This would not solve the problems based on the intrusion of law (as opposed to lawyers) into the activities of health care education and delivery of services. In most of the activities of health professions education, education and patient care coexist, confounding the problems and obligations we as teachers, administrators, and clinicians must face.

The particular subject of this article, graduate medical education, has become relevant to optometry as our residencies and internships have proliferated. Our people must be prepared to understand and deal with the legal issues facing us in an ever more complex society and health care delivery system, from applications and admissions procedures for these residency programs to liability of faculty, residents, and institutions for patient care rendered in these programs.

Medical Problem-Solving: A Critique of the Literature. McGuire, C.H. J. Med. Educ. 60(8):587-95, 1985.

Much has been written recently about medical problem-solving. There is implicit in some, explicit in others, a theory of medical problem solving that forms a basis for the recommendations and conclusions.

This article makes no methodological recommendations but rather examines the premises on which other literature is based. Indeed, the author finds fallacies in many of them and has some interesting and provocative comments to make which should stimulate optometric educators to engage in further research with the goal of uncovering the workings of the cognitive process necessary to competent, effective clinical care. □



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