JOURNAL OF OPTOMETRIC EDUCATION

OPTOMETRY GRADUATES CONFIDENT IN THEIR FUTURE, Part II

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Association of Schools and Colleges of Optometry

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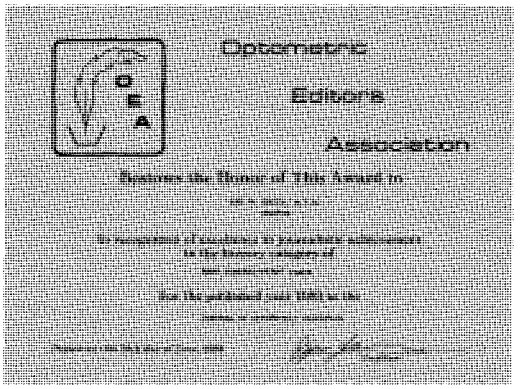

Awarded "BEST JOURNAL—FIRST PLACE" by the Optometric Editors Association, June 1984, for the published year 1983.

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ASCO NEWSMAKERS

Dr. John W. Potter, O.D., chief, optometry service at the Veterans Administration Outpatient Clinic in Las Vegas, has been named editor of the *Journal of Optometric Education.*

Dr. Potter is also assistant professor of optometry at Southern California College of Optometry and an adjunct clinical instructor at the School of Optometry at Indiana University. He has been a member of the Journal Review Board of the *Journal of the American Optometric Association.*

In 1971, he received his Bachelor's degree from Indiana University and in 1973, his Doctor of Optometry degree from the same university.

The appointment was announced by Richard L. Hopping, O.D., President of the Association of Schools and Colleges of Optometry (ASCO), following a meeting of the Association's executive board in St. Louis. The appointment will be for a three-year term beginning March 1, 1985.

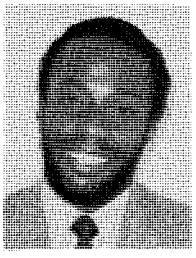
Dr. Potter succeeds John F. Amos, O.D., M.S., of the University of Alabama School of Optometry who resigned the position after seven years in order to spend more time writing a book.

In commenting on the appointment, Mr. Lee Smith, ASCO Executive Director, said, "I look forward to our association with Dr. Potter and a continuation of the high standards of editorial excellence set by Dr. Amos during his time with the *Journal of Optometric Education.* Dr. Amos has served that post long and well, and his guidance of JOE over the years has resulted in an outstanding magazine representing ASCO and optometric education—a magazine that last year was awarded 'Best Journal, First Place' by the Optometric Editors Association."

David A. Greenberg, O.D., M.P.H., has been named vice president for academic affairs and dean of Illinois College of Optometry by President Boyd B. Banwell, O.D.

Dr. Greenberg earned the O.D. degree from New England College of Optometry in 1974 as a member of a three-year accelerated program. Dr. Greenberg received a master's degree in public health in 1980 from the Harvard School of Public Health.

Dr. Greenburg joined ICO in July, 1984, as executive director for institutional planning, Office of the President. He was previously associate professor of optometry at Southern California College of Optometry and director of the optometric center of Los Angeles.



Emanuel Lomax, Jr.

Emanuel H. Lomax, Jr., was recently appointed to the position of director of the optometric careers access program (OCAP) at The New England College of Optometry. As an administrator, he will be directly responsible for the active recruitment of minority students at the college.

Prior to his appointment at The New England College of Optometry, Lomax worked at Salem State College in Salem, Massachusetts. There he served as coordinator of community relations and as assistant director of admissions. Mr. Lomax is also a consultant with the Wentworth Institute of Technology, Boston, within the College Upward Bound Program.

Dr. Melvin D. Wolfberg, O.D., president of the Pennsylvania College of Optometry, was sworn in as the 31st president of the American Academy of Optometry (AAO). Dr. Wolfberg becomes only the second person to have held the presidencies of the AAO and the American Optometric Association (AOA). He was the 48th president of the AOA in 1969-70.

Richard L. Hopping, O.D., D.O.S., president of the Southern California College of Optometry, and president of ASCO, has been named recipient of the American Public Health Association Vision Care Section's "Distinguished Service Award."

The award is presented to an individual who has demonstrated continual high quality service in the area of public health vision care. Dr. Hopping is the fourth recipient of the award which is the highest honor bestowed by the Vision Care Section of the American Public Health Association.

Professor Frank A. Brazelton, O.D., has been appointed by President Richard L. Hopping, O.D., D.O.S., to serve in an interim position as dean of academic affairs at the Southern California College of Optometry (SCCO).

Dr. Brazelton was elected by the College faculty and subsequently recommended to the President to serve in the position until such time as a thorough search has been conducted and a new dean of academic affairs selected. The appointment of Dr. Brazelton filled the vacancy left by the former dean of academic affairs Douglas H. Poorman, Ph.D., who, after eight years at SCCO, accepted a position as dean of faculty at Southern College of Optometry, Memphis, TN.

Veterans Administration Chief Harry Walters announced the appointment of **John Ditzler, MD,** as the VA's new chief medical director. Ditzler succeeds Donald Custis, MD, who resigned earlier this year to become director of medical services for the Paralyzed Veterans of America. Ditzler is former director of the San Diego, CA, veterans hospital.

Linda Casser, O.D., has joined the faculty of the Indiana University School of Optometry as an assistant professor and director of the Walker Eye Clinic, a new external clinical facility for senior clinicians located in Indianapolis. Prior to joining Indiana University, Dr. Casser was chief of primary care service module 4 at the Eye Institute of the Pennsylvania College of Optometry. □

ASCO Serves Students

This issue of the JOURNAL OF OPTOMETRIC EDUCATION includes a student news column which it is hoped will become a regular feature of future issues. Also to be found in this issue is an article that was co-authored by a student at the University of Houston College of Optometry. With so much student input appearing in this issue, it seems like a fitting time to reflect on ASCO's commitment to students and student services.

I currently serve as Chairman of ASCO's Council on Student Affairs (CSA). This group has representation from every school and college of optometry. While these Council members have various titles and duties at different institutions, they include directors of admission, deans of students, financial aid officers, student affairs staff and others whose responsibilities have them involved in the delivery of non-academic services to students.

Our Council has adopted a functional definition for student affairs, which is as follows:

Student Affairs at a school or college of optometry encompasses all of those activities related to the education and development of the applicant, student and alumnus outside of the classroom, laboratory and clinical instruction. The Student Affairs Program is concerned with the individual from a personal, academic, social, economic, cultural and professional standpoint; creating an environment which would help students develop appropriate attitudes toward their professional responsibilities for patient care and as active members of their profession and community. The student affairs function at a school or college of optometry is an institutional recognition that students are more than mere products of the knowledge and skills gained in the academic program of study.

With so many areas of involvement within the functional umbrella of student services, and limited manpower and financial resources, our Council has found it necessary to establish a narrow set of priorities. We have currently identified as our top two priorities: optometric student recruitment and professional placement of recent graduates.

Numerous activities and energy have been funneled into student recruitment over the last two to three years. This is because our schools and colleges have experienced a serious decline in numbers of applicants. The 1982 pool of applicants was roughly 50% of the size of the applicant pool five years earlier. In 1983 we witnessed a leveling off of the decline in applicants, and the 1984 applicant pool showed a modest increase in numbers. We therefore feel that our hard work in the area of recruitment has paid off. It is my belief that we must continue to stress the importance of on-going student recruitment. I would like to see us build the applicant pool back up to the point where it was in the mid 70's. In saying this, I want to stress that doing so is not out of any intent to see an increase in class sizes, but rather to make available an applicant pool which is large enough to insure our ability to maintain a high standard of excellence among applicants selected for admission.

I would like also to see our Council begin to devote more energy and resources to professional practice placement. Students are graduating from optometry schools with unprecedented indebtedness. Add to this the fact that competition is increasing in the vision care marketplace, and consequently, our new graduates are finding themselves under increasing pressure to enter into practice situations which are less than ideal.

I am hopeful that our Council with its many talented and energetic members, working with other groups who are interested in student placement, will discover and promote new and creative ways to assist our graduates find, finance and successfully complete the negotiations for highly professional and viable practice opportunities.

The important role of student affairs in optometric educational institutions has not always been fully understood and appreciated by policy makers, administrators, faculty, staff and the general public. Therefore, I am pleased to see JOE devoting a portion of its contents to the activities of optometry students and the work of ASCO's Council on Student Affairs. In doing so I believe that JOE will help to educate its readers, and give them a renewed and expanded appreciation of the vital role of optometry students and student affairs personnel in the development of optometry's future. □

David W. Davidson

David W. Davidson, O.D.
Chairman
ASCO Council on Student Affairs

David W. Davidson, O.D., associate dean at the University of Missouri-St. Louis School of Optometry, is chairman of ASCO's Council on Student Affairs.

STUDENT FORUM

AOSA Congress

Many AOSA members enjoyed a wonderful educational and social event by attending the Fifteenth Annual AOSA Congress. The Congress was held in St. Louis, Missouri, at the Clarion Hotel from January 9-12, 1985 and was hosted by the University of Missouri-St. Louis School of Optometry. Record setting attendance was said to be in order this year due to St. Louis' central location.

The Congress was organized into three areas of interest: the Speaker Program, Optometric Exhibits and Social Events. This year's Congress began its speaker program with an Extended Wear Contact Lens panel discussion, and followed throughout the week with topics such as: An Overview of Presbyopic Fitting, Optometric Use of Over the Counter Drugs, Optometry and the Law, Near Point Demands of VDTs, Vision Development in the Infant and Child, Future of Microcomputers in the Optometric Practice, Incorporation of Low Vision into a General Practice and Associate Practices. There is a tremendous opportunity for educational enhancement outside the structured walls of a classroom for a student while in attendance at the Congress.

The Congress also featured over forty optometric and ophthalmic company exhibits on display. A list of social activities was scheduled to entice the Congress attendees' appetite for the finer things in life, such as: the Mississippi Riverboat Dinner Theatre, the Fabulous Fox Theatre, the Exhibitors' Luncheon, Late Night Movie Festivals, an AOA Pizza and Beer Party, AOA and UMSL Tours and the final Entertainment and Dance Banquet.

The AOSA would like to thank all the schools and colleges that supported our efforts in allowing any student member who wished to attend the Congress the opportunity to do so. Schools or colleges that were not in favor of students attending the Congress are asked to reconsider their position for future Congresses in light of the information presented here.

M. Timothy Staarmann, a student at The Ohio State University College of Optometry, is the AOSA liaison to ASCO.

NBEO Examination Fees to Rise

At their meeting at the June '84 AOA Congress in Hawaii, the Board of Directors of the National Board of Examiners in Optometry voted unanimously to raise the fees of the NBEO examination 6.5% effective April, 1985. The NBEO exam, already the most expensive "health professions" certifying exam prior to the 6.5% increase, costs as follows: Filing Fee—$130; Part I—$120; Part IIa—$100; Part IIb—$155; Single Section—$60; Late Filing Fee—$45; Hand Scoring Fee (per part)—$50; Returned Check Charge—$20.

It seems to be a fact of life that as time passes everything becomes more expensive. Educational costs have gone up at most of the schools and colleges of optometry, equipment costs have risen, living expenses are getting higher and now Board examination fees are raised. To offset this, students need more financial aid and a fairer method of receiving it, which does not seem to be the general trend. Let's hope that the cost of an optometric education doesn't discourage prospective students from entering the field and that current students aren't pressured into practicing in a commercial setting because of the large financial burdens they may have at the time of graduation.

Students Receive Awards

The 1984 Skeffington-Alexander Memorial Awards, given by the Optometric Extension Program Foundation (OEPF) Research Committee, were presented to: Karen Wolf, a graduate student at SUNY, who received $500 for her study on "The Role of Accommodation and Binocular Vergence in Visual Fatigue Induced by Near Work at a Video Display Terminal or Hard Copy"; Thomas N. Johnson and Donald P. Apodaca, Southern California College of Optometry '84 students, who received $500 for their paper "Accommodative Response to Video Display Terminals"; three Pacific University '84 students, Robert D. Peek, Randall Minard, and Karen Preston, who received $500 for their paper, "The Effect of Optometric Treatment on Asthenopia Experienced by VDT Operators." □

ANNOUNCEMENTS

NBEO EXAM REQUIRED IN MARYLAND

The Department of Health and Mental Hygiene, Board of Examiners in Optometry, reminds students that effective with the July, 1985 examination, all candidates for licensure in Maryland are required to take the NBEO examination. A passing score of 75% on each section of the NBEO examination is required to be eligible to take the Maryland examination.

Candidates will still be required to take written examinations in vision training and Maryland optometric jurisprudence and clinical-practical examinations as required by the Board.

EXAMINATION SCHEDULED FOR TREATMENT AND MANAGEMENT OF OCULAR DISEASE

The International Association of Boards of Examiners in Optometry (IAB) will administer an examination in the Treatment and Management of Ocular Disease on Thursday, April 4, 1985 from 4:30 p.m.-7:00 p.m. at 15 locations throughout the United States.

The examination will be administered at 4:30 p.m. on the third day of the National Board examinations at the 15 centers already scheduled around the country. The examination will consist of 150 multiple-choice items that have been selected from outstanding item writers, and developed into a criterion-referenced examination by a committee of experts in the field.

For further information on the examination, contact the IAB office at #950, 5530 Wisconsin Avenue, N.W., Washington, D.C. 20815, (301) 951-6330.

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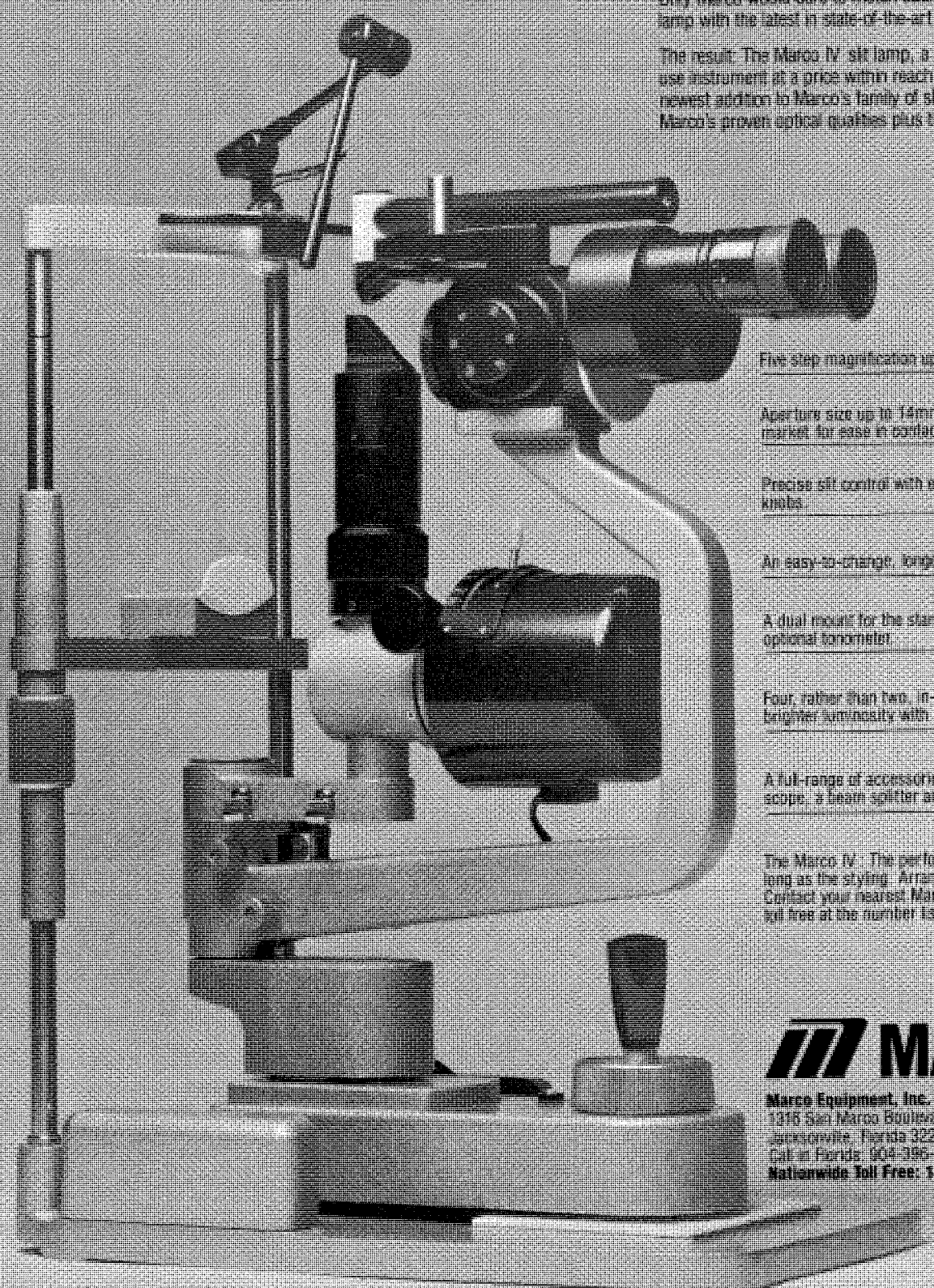

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PROFILE

The Southern California College of Optometry

Debra J. Christensen

The beginning of 1985 marks the 81st year of operation for the Southern California College of Optometry (SCCO). Founded in 1904 as the Los Angeles Medical School of Ophthalmology and Optometry, the College has, throughout its first 80 years, boldly faced a variety of challenges encountered from the evolving profession of optometry, as well as the environmental and financial factors of the time.

Over the years, the evolution of optometry brought about major changes in curriculum and clinical training, student demographics, class size, College name and a host of other items. Today, the College has grown in size and prestige adding to its status as a leader in optometric education. In celebration of the College's 80th anniversary, SCCO Professor Emeritus James R. Gregg, O.D., has written, "Origin and Development of the Southern California College of Optometry, 1904-1984." The book, released in September, 1984, presents an interesting look at the leaders and students of the College. It also details the many events that challenged the College's very existence.

Facilities

A seven-acre greenbelt harbors the SCCO campus that was completed in 1973 with the assistance of a matching grant from the U.S. Department of Health, Education and Welfare. The campus consists of four buildings.

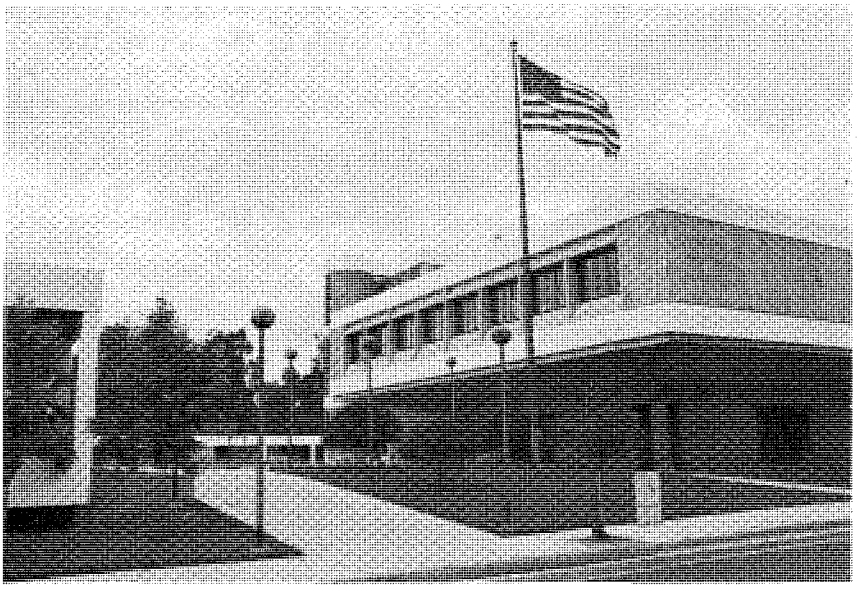
The Academic Building provides research and teaching laboratories for anatomy, physiology, neurosciences, pharmacology, mechanical optics, visual science, contact lenses and preclinic, plus a number of support shops, classrooms, faculty offices, a computer center and animal quarters.

The Roger Wilson Administration Building houses a reception area, administrative offices, conference room and two large lecture halls equipped with a closed-circuit television system. In 1983 a third floor addition to the Administration Building was completed. Designed to serve a number of functions, the new addition, which provides over 3,600 square feet of office and storage space, houses the President's office.

The Student Center includes the student lounge, bookstore and SCCO's M.B. Ketchum Library. The Library is a great source of pride for the institution. The Library's extensive collection of books, journals and audio-visual materials contributes to its reputation as one of the finest visual science libraries in the nation.

Completing the campus quadrangle is the College's 25,500 square foot major clinical teaching facility—the Optometric Center of Fullerton (OCF). As a community service resource center, OCF provides the following professional optometric services: primary vision examinations, contact lenses, vision therapy, low vision, ocular diagnostic and special testing and ophthalmic dispensing.

The College derives its income from tuition, fees, clinical services, legacies, gifts, grants and contracts from various states and has received some special project grants from the Federal Government. The curriculum is designed specifically to meet the needs of individual students and prepare them for a career in optometry. The curriculum stresses the understanding of concepts rather than materials to be memorized, emphasizes techniques of problem-solving and facilitates independent study.



The campus of the Southern California College of Optometry, Fullerton, CA.

Debra J. Christensen is director of public information at Southern California College of Optometry.

Institutional Objectives

The paramount goal of the Southern California College of Optometry is to prepare men and women for the role of vision care specialists serving a vastly complex society. To achieve this end, specific educational programs are provided to develop qualified health care practitioners in the art and science of optometry.

Emphasizing the scientific basis of optometry and the skillful application of scientific principles to resolve human problems, the College strives to provide the student with professional competency and attitudes essential for the practice of optometry as a primary health care profession.

The scope and function of the optometrists of tomorrow wll be determined by the demands of a complex and changing society. Those demands and the College's response will certainly expand beyond today's horizons just as its present role has done when compared with yesterday. The College is committed to the development of optometrists who have the capability and desire, not only to provide competent professional care by the standards of today, but also to respond to the challenge of change.

Leadership—Administration, Faculty, Students

SCCO has had the good fortune to be guided by strong individuals who had the foresight, courage and determination to move the school ahead when the present circumstances looked bleak, indeed.

Of the many exceptional persons who have been responsible for the key administrative functions of the institution, none has had a stronger influence on the College's strength, prestige and future than the current President, Richard L. Hopping, O.D., D.O.S. Dr. Hopping, a former AOA President and a highly respected leader in organized optometry, has been a strong advocate for the advancement of optometric education; his leadership at SCCO is unsurpassed.

In addition, SCCO has indeed been blessed during its first 80 years with distinguished faculty members dedicated to providing the best educational instruction possible to students. For the 1983-84 academic year 70 men and women served as SCCO faculty members. This number included: 10 professors, 13 associate professors, 33 assistant professors and 14 instructors.

Faculty research and faculty-assisted student research receive continued administrative and faculty support. From this research, faculty have produced text books, published research papers, given oral presentations, produced illustrative posters or a combination of these over the years.

Accreditation

The first accreditation took place in 1925 when the College received an "A" rating by a committee sponsored by the American Optometic Association to rate the colleges. In 1934 the Council on Optometric Education was formally created by the AOA to be an accrediting agency for the profession and it has functioned in that capacity since. SCCO has been continuously accredited since then.

In the early 1950s, the College requested an accreditation visit by the Western College Association (now known as the Western Association of Schools and Colleges), but at that time professional schools were not included in those accredited by the Commission. This policy was later changed and in February, 1961, the College received its first regional accreditation, the first independent college of optometry in the nation to be accredited by a regional commission. Accreditation visits since then have been made in cooperation with a team from the Council on Optometric Education and full accreditation has always been granted.

Today the College is accredited regionally by the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges (WASC). SCCO is also accredited professionally and nationally by the Council on Optometric Education (COE), of the American Optometric Association, a member of the Council of Postsecondary Accreditation. The College's curriculum is approved by the State of California Department of Education, the Office of Private Postsecondary Education for the Veterans Administration and by all state Boards of Optometry.

During FY 83-84 the College readied itself for accreditation of its educational curriculum and clinical programs. A 588-page self-study document, prepared for the joint site-visitation of WASC and COE, resulted from the in-depth analysis for the years 1979-83. Following a three-day site-visitation by the two agencies, the classification "Accredited" was awarded SCCO's professional degree program for a period of seven years. This rating represents the highest level of accreditation and the maximum period of time this classification may be awarded to an institution.

A site-visitation team representing the COE evaluated the Residency in Rehabilitative Optometry at the Los Angeles Veterans Administration Outpatient Clinic and the Residency in Hospital-Based Optometry—Primary Care at the Brentwood Division of the West Los Angeles Veterans Administration Medical Center. In addition, a site-visitation by the COE was undertaken for the Residency in Hospital-Based Optometry—Geriatrics at the American Lake Veterans Administration Medical Center in Tacoma, Washington.

These three residency programs offered through SCCO were awarded full four-year accredited status. An additional residency in Children's Vision at the Optometric Center of Fullerton and the College's Optometric Technician Program had been previously awarded full accredited status in 1983.

During FY 83-84 four residency programs were operational through SCCO. Programs included: Children's Vision offered at the Optometric Center of Fullerton; Rehabilitative Optometry conducted at the Los Angeles Veterans Administration Outpatient Clinic and the Optometric Center of Los Angeles; Hospital-Based Optometry—Primary Care, at the Brentwood Division of the West Los Angeles Medical Center; and Hospital-Based Optometry—Geriatrics, at the American Lake Veterans Administration Medical Center, Tacoma, Washington. An additional residency program in Hospital-Based Optometry —Geriatrics at the Brentwood Division of the West Los Angeles Medical Center began in August, 1984.

The College also sought separate accreditation from the Council on Clinical Optometric Care (CCOC), for the three College-operated clinical facilities in 1983-84: the Optometric Center of Fullerton, the Optometric Center of Los Angeles and the Baldwin Park Optometric Center. The CCOC, sponsored by the AOA, accredits the quality of patient care and the clinical facilities; it does not accredit the educational program. An in-depth self-study was conducted on each clinical facility prior to

the site-visitation by the CCOC accrediting team. SCCO is indeed proud of the full four-year accreditation status received by each of the three facilities.

Demographic Information

The College offers three degrees. An Associate of Arts is awarded after two years of college work to those completing the Optometric Technician Program. About 25 students are accepted each year into the technician program, including those who receive a Certificate of Completion only. A Bachelor of Science degree can be awarded to those doctoral degree candidates who have completed the specific prerequisites but not less than 140 semester units when combining the pre-optometric and optometric studies. Nearly 70% of all entrants to the College have a bachelor's degree but an average of 60 students per year complete the requirements and are granted the degree Bachelor of Science in Visual Science by the College.

A Doctor of Optometry degree is granted to those completing the four-year professional program. At least two years of pre-optometric college work in specific prerequisites are required for entrance. Ninety-six students are accepted into each entering class. The student body comprises students from 30-35 different states, the largest number being from the West, with about 50 from California. The College functions as a regional resource for optometric training and is an active participant in the Western Interstate Commission for Higher Education student exchange program. Minorities are represented in each class and over 42% of the last entering class was comprised of females. About one third of the students are married. The total student body numbers about 400 each year.

A new honor system to acknowledge academic excellence was implemented with the graduating class of 1983, whereby certain students had the words "With Distinction" imprinted on their diplomas. The guidelines for graduation with honors state that not more than 10% of any graduating class may receive this distinction; consequently, nine of 88 graduates in the Class of '83 were recognized and nine of 93 from the Class of '84.

The determination of this honor is based on two criteria: grade point average and excellence in patient care or research. The candidate must have earned a grade point average by the conclusion of the third professional year that ranks in the upper one-third of the class; excellence in patient care or research is judged by SCCO faculty.

Admissions

In the past decade there have been three significant changes in the composition of the entering class and the student body as a whole. The first change is the increase in the number of students from California from a low of 22 in 1975 to a high of 60 in 1982; there are a variety of reasons for this. One significant factor was the elimination of the federal capitation program, which meant that a private college was no longer required to admit 50% of its students from states that did not have an optometry college. Another factor was the decrease in the number of state contracts.

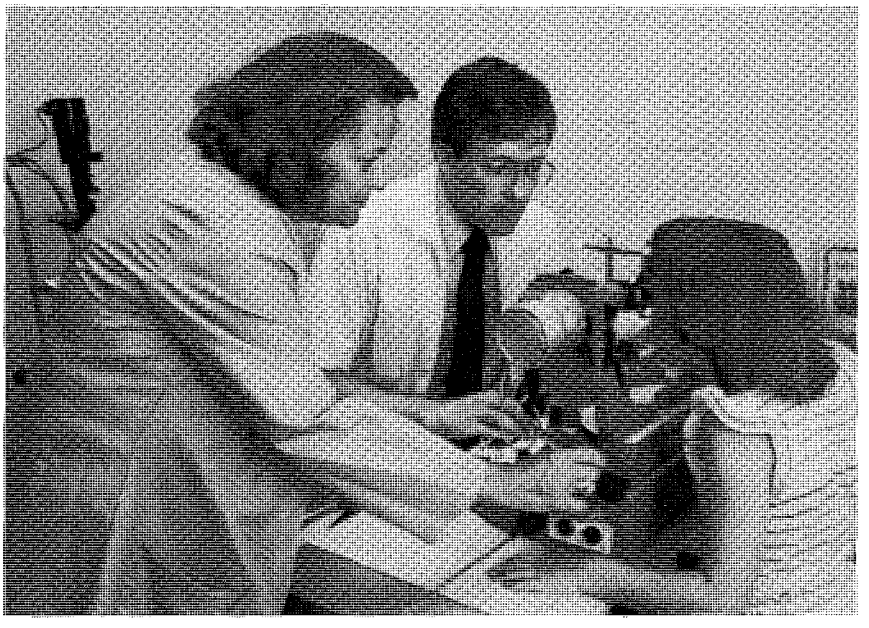
Another area of significant change in the SCCO student body composition is in the number of minority students (Black, Hispanic, American Indian and Asian American as per Federal definition). With the exception of 1976 through 1978 when there was a decline, there has been an increase in the number of enrolled minority students from 13.8% in 1972 to 27.2% in 1983. The three years of decline match a decline in the number of minority students at all optometry colleges. SCCO has traditionally had a minority enrollment of two to two and one-half times better than the national average. This may be in part due to the commitment of the College to recruit and enroll qualified minority applicants.

Finally, the third area is the number of female students. The percentage of female students has steadily increased from 1.6% in 1972 to 31.9% in 1983 and to 42% in 1984—a trend similar to that in medicine and in other health professions.

Curriculum

A Curriculum Committee is appointed annually by the administration to evaluate present curricular tracks and elements, to alter the curriculum as indicated by changes within the profession, and to assess the adequacy of the institution's pre-optometry requirements.

In recent years, the Curriculum Committee has spent innumerable hours studying and developing the "track concept" at SCCO. The vertical track concept is a method of analyzing the curriculum along broad subject areas that are necessary to the clinical practice of optometry. Vertical tracks eliminate excessive redundancy between courses and also minimize the possibility that large gaps exist between courses. It is expected that each course taught within a track will provide the necessary foundation for each succeeding course(s) within the track. A track is further de-



Clinical programs with a high student/faculty ratio ensure a quality education.

fined in areas of curriculum identified by terminal skills and/or knowledge of a related kind. Such knowledge and skills should be those that each graduate would be expected to have at his or her command in order to engage in the practice of optometry.

The title of a track identifies, in broad terms, those specific end-point competencies that are needed to practice optometry in a professional setting. Based on the work of the Curriculum Committee over a four-year period eight tracks have been identified. These are (1) Refractive Conditions and Ocular Optical Anomalies; (2) Sensor and Motor Anomalies of Vision; (3) Visual Developmental and Perceptual Anomalies; (4) Ocular and Systemic Disease; (5) Visual Environment and Safety; (6) Community Health; (7) Practice Administration and (8) Research and Professional Development.

Each of the eight major tracks within the SCCO curriculum also contain a list of end-point competencies related to each track and sample statements to clarify individual competencies. The document for each track was authored over a period of several years by subcommittees of the Curriculum Committee and finally approved by the full Curriculum Committee in 1982.

Outreach

Recognizing that the Optometric Center of Fullerton (OCF) and the Optometric Center of Los Angeles (OCLA) did not provide either the broadest spectrum of patient background or problems deemed necessary for students, the College, under the direction of President Hopping, embarked on a vigorous endeavor to establish a number of additional outreach clinical facilities in the early 1970s. In fact, in 1973, SCCO became the first school or college of optometry in the nation to establish a clinic in another state.

In a period of several years, the outreach program expanded tremendously, reaching a point where students had an opportunity to acquire clinical training in as many as 52 locations in nine different states. The actual sites available vary from time to time.

Three clinics are operated solely by the College, which has full fiscal responsibility (OCF, OCLA and the Baldwin Park Optometric Center). Of the outreach clinical programs, one is operated on a contract basis with funds from the contract used to pay clinical faculty (Las Vegas Low Vision Clinic Bureau of the Blind, State of Nevada). One is operated by the College with funds from a grant paying most of the operational expenses (Optometric Clinic, Los Angeles Veterans Outpatient Clinic). There are 30 or more additional clinical training sites operating under a special memorandum of agreement where students are supervised by adjunct faculty but in which the College has no direct financial involvement (military hospitals, Indian Health Clinics, HMOs, etc.).

The total number of patient visits in all SCCO clinical programs in which students were involved totaled nearly 86,000 in 1983-84. Outreach facilities are located in Alaska, Arizona, California, Florida, Hawaii, Montana, New Mexico, Nevada and Washington.

Today the SCCO graduate has the richest and best clinical experiences of any of its previous graduates. The scope of clinical services, the magnitude of primary examinations and total patient visits seen by each graduate is significantly higher than ever before, and over five times what it was 10 years ago.

The fourth-year professional student is scheduled for full-time clinical assignments in the Outreach Clinical Programs and OCF for 40 weeks. The assignments at OCF expand to include low vision, pediatrics and review clinic. In addition, an enhanced program in vision therapy, contact lenses and ocular disease diagnosis and special testing is provided for students. The program at OCF provides advanced clinical training in all specialty areas of optometry. The Outreach Clinical Program provides fourth-year students with advanced community and hospital-based clinical education. The 38 outreach clinical settings provide a full spectrum of patient age, race, culture, socioeconomic, health and vision status as well as exposure to every type of delivery system. Interdisciplinary team training in outreach clinics, particularly in vision rehabilitation and primary care, prepares students for their roles as members of the health care team and future responsibilities in community and public health.

Future

At a time when many private educational institutions are confronted with great financial concerns, SCCO remains strong and steadfast in its role as a private, non-profit college. Alumni and friends have contributed greatly to SCCO's strong financial position as has sound, internal fiscal management; however, the need to broaden the College's financial base is a timely concern for the entire College family.

With the institutional goals of the College always in focus and with an eye to the future, SCCO, through the guidance of its Board of Trustees, the strength of its administration and faculty and the enthusiasm of its students, will remain a solid leader in, and advocate for, quality optometric education. □

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, pharmaceutical companies.

AO Becomes Reichert Scientific Instruments

AO Scientific Instruments, Division of Warner-Lambert Technologies, Inc., changed its corporate name to AO Reichert Scientific Instruments last year. As of January 1, 1985, the company will be known as Reichert Scientific Instruments.

The new name will extend to all products manufactured and distributed by AO Scientific Instruments (formerly American Optical). This includes Ophthalmic Instruments, which the company has developed and produced since the late thirties.

Today, Reichert Scientific Instruments has one of the most complete lines of ophthalmic instruments available in the market. These include Custom II Chair & Stand, Docustar Fundus Camera, Ultramatic RX Master Phoroptor, SRIV Subjective Refractor, Non-Contact II Tonometer, Slit Lamp, Lensometer, Radiuscope, Binocular and Monocular Indirect Ophthalmoscopes, Ultramatic Remote Control Project-O-Chart Projector, Ful-Vue Diagnostic Instruments, etc.

Ultimately, as stock product inventories are depleted the Reichert name will appear on all products. Until then, a number of different names may be seen on instruments, but the company pledges its commitment to continuing the high quality of its products.

Allergan Announces New Products

Allergan Pharmaceuticals' full line of solutions for contact lenses includes two new additions—LENS PLUS™ Sterile Saline Solution and the Allergan LensKeeper™ contact lens carrying case.

LENS PLUS is provided in an aerosol dispenser that contains no flurocarbons, making it environmentally safe. Although it contains no preservatives, the LENS PLUS unique delivery system prevents ambient air from being drawn back into the container, thus preserving the sterility of the solution. LENS PLUS will remain free from bacterial contamination for up to two years.

LensKeeper is equally well-suited for heat or cold disinfection and fits both Allergan and Bausch & Lomb heat disinfection units. Made of sturdy, rigid plastic, the case features a ribbed-lenswell design. The design allows easier lens removal and protects lenses from damage. LensKeeper was designed for use with all soft, gas permeable and hard contact lenses.

Allergan's Beginning: Room Above a Pharmacy

From its origins in a little room above a Los Angeles pharmacy in 1948, Allergan Pharmaceuticals has become one of the world's foremost pharmaceutical companies. Gavin S. Herbert, Sr., formed the company to compound prescriptions for his apothecary shops. The company is named after its first product, an antihistamine nose drop called "Allergan."

From these modest beginnings, Allergan has grown to become a multi-national company that develops, manufactures and markets products for the care of contact lenses, as well as prescription and over-the-counter products for eye and skin care, employing almost 3,000 people in 35 countries.

Allergan recognizes the critical importance of bringing products that fulfill special needs in eye care from initial conception to the marketplace. In a field where investment in research may not become profitable for 5 to 10 years or more, Allergan invests over 10% of its sales revenues in research. Manufacturing standards are higher than those imposed by many governments. As an example, machine operators in the sterile product filling rooms work in gowns and masks under stringent aseptic conditions, rivaling hospital operating rooms.

American Hydron Promotes Akerman

Dwight H. Akerman, O.D., has been promoted to manager of technical and professional services at American Hydron, Woodbury, New York, according to Warren Smith, vice president of marketing.

Dr. Akerman's previous position was professional services optometrist. His main responsibilities were lecturing and developing educational programs at optometry colleges, medical institutions and opticianry schools throughout the U.S. and Canada.

As manager of technical and professional services, Dr. Akerman retains his responsibilities as the professional voice for the company, and takes on additional marketing tasks for American Hydron. He is now charged with providing technical input for company advertising, and fitting guides and patient guides; conducting sales training sessions; and updating the American Hydron sales force on the company's research and product developments.

American Hydron is a division of International Hydron Corporation, a major international manufacturer of contact lenses and marketer of eye care accessories. International Hydron has marketing operations on every continent and manufacturing operations in nine countries.

Multi-Optics Sponsors '50/50 Program'

Multi-Optics, through its '50/50 Program,' is providing advertising assistance to its authorized Varilux distributors from January 1 through June 30, 1985. As part of the program, Multi-Optics offers each Varilux Distributor a fund that covers 50% of their ad space cost during that period, up to a maximum total of $2,500. Three camera-ready, full-page, black and white ad slicks are provided. Distributors are also free to create individualized ads, which are eligible for co-op funds if approved by Multi-Optics before placement. □

Part II: Licensure and Practice Establishment Experiences

A Survey of Optometry Graduates to Determine Practice Patterns

Robert L. Bleimann, Ph.D.
Lee W. Smith, M.P.H.

This article is a summary of a two-volume study of optometry graduates conducted by ASCO under a Department of Health and Human Services grant, Contract No. HRA 232-81-0054. Part I of the article, which was written by Lee W. Smith, M.P.H., and included the background to the survey, demographics of the respondents and their practice characteristics, appeared in Volume 10, Number 2/Fall 1984, issue of the Journal of Optometric Education. *Part II was written by Robert L. Bleimann, Ph.D., and includes the analysis of the graduates' licensure and practice establishment experiences.*

Overall Analysis Plan

One of ASCO's objectives was to document the experiences of optometry graduates along the path of obtaining a state license and becoming established in practice. The funding agency had an interest in certain other questions about the impact of state licensure requirements on the entry of graduates into practice, which was narrower in scope than ASCO's objectives. Nevertheless, much of ASCO's analysis plan was concerned with sorting out the complexities of determining impact, which need not be described in this article. The focus of the discussion will be on the empirical indicators that were developed from the survey data.

One aspect that permeated much of the analysis was that of elapsed time, or the acronym ET. The concept referred to an empirical norm about the amount of time required to complete two milestones, or important events, that graduates customarily experience. Examples of a milestone, for instance, would be the awarding of a state license or entry into a professional position. The elapsed time indicator was measured in the study as an interval in months.

ASCO found it necessary to develop a common frame of reference that would link the various sections of the analysis that discuss the passage of graduates through the various licensure and practice establishment milestones. In the survey questionnaire ASCO collected data about five milestones through which graduates commonly traverse. This included the dates for the following events:

- graduation
- state licensure examination for each state undertaken
- notification of licensure results (if successful) for each state undertaken
- first entry into optometric practice and
- entry into current practice.

For each interval between these milestones an indicator of elapsed time (ET) was constructed. Each ET measure thus provided empirical data with which comparisons between individuals were effected.

The following ET measures were deemed to be important for this analysis:

- graduation date —1— date of state licensure examination
- date of state licensure examination —2— date of notification of results
- date of notification of state exam results —3— date of entry into first practice
- date of first entry into practice —4— date of entry into current practice
- graduation date —5— date of notification of state exam results
- graduation date —6— date of entry into first practice
- graduation date —7— date of entry into current practice

NBEO Experience of the Graduates

In the survey, ASCO requested information from the respondents about their pre- and post-graduation experience with the National Boards of Examiners in Optometry (NBEO). One intent of the project was to determine whether the NBEO had a significant impact on the entry of O.D.s into the profession. One measure of impact was whether the candidate's NBEO record was such that he/she was temporarily impeded from obtaining a license in a particular state.

The responses to the questionnaire indicated the following:

- completed the NBEO before graduation—1674 (73.6%)
- either did not take or did not complete the NBEO before graduation—601 (26.4%)

Of the 601 respondents who did not successfully complete the NBEO before graduation, a number went on to complete the NBEO at a later time. The final NBEO status of these respondents was as follows:

- completed the NBEO some time after graduation—92 (15.3%)
- took a part of the NBEO after graduation but did not complete all parts of the Boards—51 (8.5%)
- did not take any part of the NBEO after graduation—416 (69.2%)

Robert L. Bleimann, Ph.D., is presently a staff member of the American Optometric Association and was project manager for the contract while serving with ASCO. Lee W. Smith, M.P.H., is executive director of the Association of Schools and Colleges of Optometry and served as project director for the contract.

• no answer/incomplete—42 (7.0%)

The overall data from the survey indicated the following:

• 77.6 percent of the graduates successfully completed the NBEO either before or after graduation.

• 18.3 percent of the graduates did not take or complete the NBEO before graduation and did not attempt to complete it.

State Licensure Experience

Analysis of the state licensure experience of the graduates was a complicated undertaking because of the following factors:

• there is considerable variation in the licensure requirements of the various states (ASCO identified six discrete models of the state licensure structure)

• graduates pursue a license-seeking strategy that is unique in that most make a licensure attempt in more than one state

• there is a chronological bias in the licensure structure in that state exams are given at different times of the year and the state of first licensure may not reflect the actual experience of a sizeable number of graduates for whom receipt of a license in their actual state of practice came at a later time

• there is an additional chronological bias in the licensure structure in that there are wide variations in the graduation dates of the schools, exam dates of the states and licensure notification dates of the states.

ASCO's analytical model, which sorts out these complicating factors, is described in greater detail in the Final Report. The discussion here will focus on salient empirical indicators.

The survey requested information from the respondents about whether they attempted to obtain a license in any state and, if so, the dates and outcome of the attempt(s). The results indicated that only 2 of the 2275 respondents did not attempt to obtain a state license. The remaining 2258 respondents attempted to obtain a license in from 1 to 7 states (see Table 1).* Fifteen respondents, who were not included in the 2258 figure, did not provide any information on state licensure, though they were actually practicing. The number of total licensure attempts, both successful and unsuccessful, was 4,743. Not included in this total are 214 multiple attempts by individuals in the same state. Overall, the average number of licensure attempts per respondent was 2.1 attempts. There is no significant variation between any of the different graduation classes from this overall mean. (see Table 1)

One statistic of interest concerned the timing of the state licensure examination and the cumulative total of graduates who attempted a state licensure examination by a certain date. The data indicated that between 94.1-95.9 percent of the gradutes from the three cohorts took their first state exam by the end of August of the year in which they graduated. The comparable figure for a second licensure attempt was 77.7-82.6 percent for the three cohorts. These figures are slightly higher for taking a state exam by the end of the calendar year in which they graduated.

One final statistic of interest concerned the order in which graduates took a state exam in relation to the state in which they end up practicing. The data indicated the following:

Order in which Attempt was Made	% Respondents Who Ended Up Practicing in That State
1st state	65.6%
2nd state	23.3%
3rd state	8.2%
4th state	2.3%
5th state	.4%
6th state	.2%

Empirical indicators for the elapsed time from the date of graduation to the following dates were then developed:

• date of state exam

• date of notification of the results of the state boards.

The data indicated that the mean elapsed time from the date of graduation to the dates of the first through sixth state exam attempts was as follows:

When the data were disaggregated by the month of graduation, it was discovered, not surprisingly, that March graduates waited significantly longer than the May and June graduates to take their first exam.

The next elapsed time interval concerned the time between the state board examination and receipt of notification of results. The overall mean for all individuals who successfully passed the state boards was 1.9 months from the examination date to the notification of results. This figure, however, should be interpreted with caution because, according to the survey, a person who takes an examination in late June and is notified in early August had a two-month wait. The actual figure may vary statistically by one-half month; in the real world by more.

The final elapsed time interval, in essence a combination of the two ET intervals discussed above, concerns the time from graduation to receipt of the results of a state board. This interval is important in the professional development of optometrists because it represents the minimum period they must wait before being able to enter the profession as a fully functioning, licensed practitioner. The overall mean, to receipt of a first license for all months of graduation and states, is 3.98 months. The overall mean from graduation to receipt of a license in the respondent's actual state of practice was 5.2 months. Naturally, this figure decreases with each passing month of graduation.

Not all licensure attempts by the respondents were successful or pursued to completion. Non-success could be a result of a failure on a given portion of the boards, withdrawal of an application, inadequate NBEO scores or other reasons. Overall, 19.3 percent of all respondents indicated they were not successful in one or more licensure attempts. Of these respondents, 79.0 percent were unsuccessful in one exam, 15.7 percent were unsuccessful on two exams, 4.4 percent were unsuccessful on three exams, and less than 1 percent were unsuccessful on a fourth exam. Overall, the most common reasons in-

	First Exam	Second Exam	Third Exam	Fourth Exam	Fifth Exam	Sixth Exam
Mean months (in aggregate)	2.2	5.2	6.9	8.1	11.0	15.0

*Though the survey form only made allowance for up to six states, two respondents indicated seeking a license in a seventh state. For data processing purposes, these additional attempts were not analyzed.

dicated for non-success in the state boards were the following:

- failed written exam —38.4%
- failed practical exam —21.6%
- inadequate NBEO score — 5.3%
- withdrew application — 4.8%
- other — 6.1%
- indeterminate —23.9%

It is interesting to note that, of those individuals who were unsuccessful, just under one-half (49.3 percent) actually went on to successfully complete the state boards in a later attempt.

The survey data were also analyzed from the perspective of the relative distribution of unsuccessful licensure attempts by state. The percentage of unsuccessful attempts ranged from 0.0 percent up to almost 40 percent. Five states, in ascending order, showed a rate of unsuccessful attempts over 25 percent: Nevada, Georgia, Hawaii, Maryland and Mississippi. Fourteen states indicated a rate below 5 percent, of which Arkansas and North Dakota showed no unsuccessful attempts. One observation is that states that do not accept the NBEO for licensure purposes tend to have a higher rate of non-success than those that require the National Boards. However, further investigation on a case-by-case basis is necessary if any additional inferences are to be made from the data.

Entry of Optometry Graduates into the Profession

The previous discussion of the licensure experiences of the respondents indicated that the graduates took an average of 2.1 state board exams. An overwhelming majority of the individuals (88 percent) successfully completed the requirements to practice on their first or second state licensure attempt and ended up practicing in one of these two states. While most state licensure attempts were successful, just over 19 percent of respondents were unsuccessful on their state board exams for a variety of reasons. However, failing a state board exam without seeking to minimize the actual or potential disruption to that individual's professional career does not seem to create a permanent barrier to his/her eventual practice in that state.

This section of the analysis was designed to determine the extent to which the state licensure system affected the entry of the graduates into the profession. An effect was considered "adverse" if one of two outcomes could be attributed directly to non-completion of a state licensure requirement. These outcomes were either (1) outright prohibition of entry into practice in any state or (2) a delay in entry into practice in a state in which practice is intended.

The first outcome refers to losses from the profession in the United States, either "permanent" or "temporary." A loss to the profession was defined as either employment outside the profession or as residency abroad (excluding those in the armed forces). The data indicated that 45 respondents (1.9 percent) indicated they were either not functioning in the profession or were a resident abroad. When this is further broken down into temporary and permanent losses, the figures emerge as follows:

	Number	Percent of Total
• temporary loss—intend to enter the profession at some time	27	1.2%
• permanent loss—foreign resident or no intention of entering the profession	15	0.7%

The conclusion that was derived from these data was that the record of the optometry profession was very good with respect to retaining graduates in the profession.

The second measure of impact, whether differences in state licensure requirements had an impact on the rate at which graduates received a license, involves a very complex discussion of the various models of licensure. Without going into specifics, the data indicated that there is no appreciable difference in the rate at which individuals obtain a state license in their current state of practice between those who passed the NBEO before graduation (5.1 months), and those who did not take or pass the NBEO before graduation (4.9 months). Those individuals, however, who completed the NBEO after graduation had an appreciably longer elapsed time to receipt of their current state license (8.2 months). The data suggest that those who complete the NBEO after graduation do so in order to practice in a particular state that requires the National Boards. It is highly probable that by the time they completed the NBEO, these candidates are out of sync with the state's examination schedule and may have to wait a year until completing the requirements.

The data obtained from the survey indicated a very important finding. For the overwhelming majority of the licensure candidates, the specifics of the state licensure requirements did not account for any significant differences in the mean elapsed time to obtain a license in the respondent's state of practice.

TABLE 1
Number of States in Which a License was Sought, by Cohort

	Total	1979	1980	1981
1 state	819 36.3%	283 38.7%	246 33.6%	290 36.6%
2 states	731 32.4%	230 31.4%	258 35.2%	242 30.6%
3 states	472 20.9%	149 20.4%	150 20.5%	173 21.8%
4 states	157 7.0%	48 6.6%	54 7.4%	55 6.9%
5 states	56 2.5%	16 2.2%	16 2.2%	24 3.0%
6 states	23 1.0%	6 .8%	9 1.2%	8 1.0%
Total	2258	732	733	792

Establishment and Development of an Optometry Practice

The next hurdle optometry graduates face after state licensure is that of establishing themselves in optometric practice or other form of related employment. In the survey, ASCO collected data to permit an analysis of various factors, not related to licensure, on the graduate's experience in entering the profession. These factors included any preparations made for entry into practice while at optometry school and any delays encountered in entering practice. Elapsed time indicators were also developed for those milestones involved with the graduate's entry into a first position and current position.

Within the profession there is a concern about the type and extent of the preparations optometry students make for their eventual entry into the profession. These prior preparations might include obtaining a service-related scholarship, working in an optometry or vision care related office and the like. ASCO identified a number of activities that would most commonly be undertaken by graduates and listed them in the survey. Respondents were asked to check all that applied.

Overall, 95.6 percent of the respondents indicated that they made one or more preparations for entry into practice. Almost three-quarters (74.1%) mentioned that they had talked to a prospective employer, partner or associate. The second most common form of preparation indicated was taking a practice management course at a school of optometry (66.6%). This finding was expected because most of the schools of optometry require their students to take such a course, usually in the spring term of the fourth year. While the usefulness of the practice management courses was questioned by a number of respondents in the questionnaire form, the fact that these courses are frequently taken showed that many graduates have at least a minimum degree of preparation for dealing with professional problems after graduation. Working in an optometry office ranked third (42.0%) in the list of prior preparations. The most common arrangements for these students were working part-time under the supervision of an optometrist for a salary or full-time as part of an externship program organized by the school. Closely following in fourth place was the category of negotiating a position to commence upon graduation (41.7%). This preparation differs from talking to prospective employers in that some form of arrangement is suggested or implied. The remaining categories, in descending order, include selecting an actual practice location, devising a marketing strategy, ordering equipment, developing a relationship with another health professional for joint services, and "other" preparations.

'In the first 12-15 months after graduation between 93.9 and 95.9 percent of the graduates had entered their first practice.

Difficulty in finding employment after graduation was mentioned by 23.6 percent of the respondents. It is difficult to analyze this response any further because the nature of the problem has not been specified. The other professional delays mentioned, in descending order, were problems of finding a suitable practice location (14.6%), delays in the receipt of the necessary equipoment (3.7%), and that a business license to practice was not readily available (0.9%).

In contrast to those individuals who reported having some difficulty in entering practice after graduation, 30.7 percent of the respondents indicated that they did not encounter any major problems in establishing a practice.

A number of observations can be made about the experiences of men and women with regard to lag factors. Overall, women report having encountered more difficulty finding employment than men (29.9% to 22.4%, respectively). Women also reported having problems financing a practice as a result of educational indebtedness more frequently than men (39.4% to 34.3%, respectively). However, in each of the other professional lag factors men were more likely than women to check one of these categories. When delays caused by personal decisions are examined, women were more likely than men to indicate such a lag.

Another section of the report dealt with the elapsed time from the receipt of a state license to entry into professional practice. The data indicate that by the end of the calendar year in which the respondent graduated, between 86.9 and 89.1 percent of the graduates for each of the three years had entered their first practice circumstance. Moreover, in the first 12-15 months after graduation between 93.9 and 95.9 percent of the graduates had entered their first practice.

Additional data are also presented on month of entry into current practice. The data indicate that the rate of entry into the respondent's position increases for each later cohort. These data suggest that the newer graduates have not had the same opportunity or inclination to change positions as the earlier graduates. In other words, fewer 1980 and even fewer still 1979 graduates indicated having entered their current, as opposed to their first, practice in the two years following graduation.

Another analyzed elapsed time indicator was the interval from receipt of a first state license to first entry into practice. The overall mean is 2.56 months. This mean may not be the actual mean for many graduates because the first state of licensure was not necessarily the state in which the graduate entered his/her first practice. Overall, 25.3 percent of graduates entered practice the same month when their first state license was received. By month six the cumulative percentage was 89.0 percent of all respondents. The data for each of the cohorts showed no significant differences.

When the figures on prior preparations are broken down into categories by gender, a few interesting observations emerge. By and large, a higher percentage of males than females indicated undertaking one or more types of prior preparations specified in the questionnaire. However, females outscored males in two areas: working in an optometry office (53.7% female—39.7% male) and developing a joint service relationship (8.5% female—7.4% male). It is not clear why women work in an optometry office in proportionately greater numbers than men. One possible explanation is that women purportedly favor working in a joint practice or salaried position rather than in a solo practice after graduation. Whether this occurs by design or by circumstance is

unclear but this supposition is verified by the data on the form of practice by sex. Indeed, women work less in a self-employed capacity, which might explain the greater incidence of prior preparations undertaken by men if self employment was their preferred professional goal. This interpretation is underscored by the fact that the difference between men and women in the categories of talking to prospective employers, etc., and negotiating a position is almost negligible, but more pronounced with respect to selecting a practice location, devising a marketing strategy and ordering equipment. A fruitful idea for further study would be to examine whether men and women pursue the same or different professional goals in optometry, the types of preparations they undertake to effect their entry and the effectiveness of these preparations.

In the survey, ASCO was also concerned about any lag factors encountered after graduation that had a significant impact on the entry of graduates into practice. Anecdotal evidence from some graduates suggested that the indebtedness of many new O.D.s was a serious obstacle to the achievement of a self-employed practice in the profession. This question was designed to obtain information about the professional and personal factors that were thought most likely to have an impact on the post-graduation experiences of the O.D.s. In interpreting the data, however, one must be aware that there were certain design flaws that limit the usefulness of the results.

Overall, the most frequent response (35.1%) involved acknowledgement of a large debt incurred by educational expenses that caused difficulties in financing a practice. The next most frequently cited problem (25.2%) was a difficulty in obtaining the necessary capital to finance a practice. These findings support some of the impressions ASCO has gathered from recent graduates that the financing of a practice, when combined with prior existing debt, has made the attainment of a self-employed status more difficult in recent years. While this question does not provide any means to quantify this assertion, it suggests that the anecdotal evidence has a basis in fact.

The next ET interval examined the time between entry into first practice and entry into current practice. The reader should be made aware that ASCO assumed that establishment of a practice is a developmental process in which one would expect to see major differences in levels of professional attainment between the cohort groups. The data suggest that this hypothesis is indeed true. The overall mean time from first practice to current practice was 6.31 months. More important, however, were the mean times for each of the three graduation classes. The figures for each graduation year were as follows:

Graduation Year	ET From First Practice to Current Practice
1979	9.16 months
1980	6.27 months
1981	3.69 months

It is not uncommon for a new O.D. to enter into a supervised position, fulfill a state residency requirement or take a number of part-time positions immediately after graduation. A consolidation process often takes place in which the graduate moves on to a full-time capacity. The data for the 1981 cohort suggest that these graduates have made the first of perhaps a number of professional moves that ultimately lead to their career goal. The lengthened ET indicator for the 1980 and 1979 cohorts, respectively, suggests that later employment changes can be expected from the 1981 graduates as they proceed toward their professional goal.

The final ET indicator we will discuss concerns the very important interval from the month of graduation to entry into the respondent's current practice. Overall, the mean ET for all years was 10.3 months. The cohort data yield variable experiences for each of the graduating years. The mean for 1979 graduates is 13.3 months, 10.4 months in 1980 and 7.5 months in 1981. □

An Analysis of Pharmacology Training in Schools of Optometry, Medicine and Dentistry

Marti Waigandt, B.S.
Alex Waigandt, Ph.D.

Introduction

In recent years, a great deal of controversy has existed over the issue of drug licensure for optometrists. Members of the medical community have come out on both sides of the issue, some stating that optometrists are neither qualified to use nor require pharmaceuticals in practice and others stating that pharmaceuticals are both necessary and important in optometric practice.[1,2,3]

The role of the optometrist has changed markedly from the mid-19th century entrepreneur who merely corrected refractive errors to the highly skilled professional licensed to examine, diagnose and treat conditions of the visual system.[4,5] In addition to correcting refractive errors, the optometrist can often recognize early stages of pathological conditions such as diabetes, hypertension, arteriosclerosis, cataracts and glaucoma.[6] Since many of these conditions are asymptomatic at the onset, it is of vital importance that optometrists serve as portals of entry and make referral to the appropriate health care provider.[7] Optometrists refer 5.6 percent of their patients each week.[8] Improved and more complete ocular and visual care would undoubtedly be accomplished with the use of pharmaceutical agents. This would result in increased benefits and service to the patient. With the use of these agents, the training and skills of the optometrist would be maximized.

Not only has the role of the optometrist expanded, but so has the public need for his services. In the United States, approximately two out of every five persons require eye care, most of which is provided by optometrists.[9] Approximately 19,300 optometrists currently provide eye and vision service to 69 percent of the counties in the United States. About 9,500 active ophthalmologists provide service in only 33 percent of the counties in the U.S. and they are concentrated primarily in metropolitan areas.[10] Therefore, where a large proportion of the population has no access to an ophthalmologist they may have access to an optometrist.[11] It is important that every adjunct to diagnosis, including pharmaceutical agents, be made available to the optometrist in order to serve the public.

With regard to the diagnostic agents utilized by optometrists, the risks of adverse drug reactions are minimal. The safety and efficacy of these drugs has been established and substantiated in the professional literature.[12,13,14] One study showed that, for an 85 year period, "possibly ten deaths were reported associated with the topical application of these drugs, but only when misused."[15] Additionally, use of diagnostic pharmaceutical agents by optometrists in England, the United States Armed Services and in over thirty states in which use of these drugs is allowed has not resulted in any incidence harmful to the welfare of the public.[16]

The public need for optometrists to use drugs has been stated and the safety of these drugs has been demonstrated. Therefore, the question is: Are optometrists qualified to use pharmaceuticals? It is the intent of this study to analyze optometrists in terms of academic qualifications as compared to clinicians currently licensed to use pharmaceuticals.

Methods

Fourteen states contain colleges of optometry: Alabama, California, Illinois, Indiana, Massachusetts, Michigan, Missouri, New York, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee and Texas. These states were designated as study states and collectively contain 111 colleges of medicine, dentistry and optometry. Of these school types, 37 colleges of medicine, 31 colleges of dentistry and 15 colleges of optometry were selected for participation in the study. The department chairperson or director of pharmacology in each school was identified as the study respondent.

Data were generated from the subjects' responses to an instrument whose purpose was to query the amount of hours devoted to the study of pharmacology. The investigation, being descriptive in nature[17] viewed hours spent in each of 13 major pharmacology study categories and total class hours in the study of pharmacology as separate dependent variables. These categories included: (1) basic principles in pharmacology, (2) drug effects on the nervous

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system, (3) psychopharmacology, (4) central nervous system stimulants and depressants, (5) anesthetics, (6) cardiovascular agents, (7) ocular pharmacology, (8) respiratory and gastrointestinal tract agents, (9) endocrine pharmacology, (10) chemotherapy, (11) poisons and antidotes, (12) drug interactions and (13) prescription writing. A 14th variable involved the total hours each school type spends on the study of pharmacology. This instrument was designed through a review of the literature[18] and with the consultation of experts in the field; and, indicative of a pharmacology education sequence for health practitioners.

Results from the instrument were analyzed using the statistical package for the social sciences (SPSS) and calculated on an AS 9000 computer system at a major university. Treatment of the data was performed implementing: (1) descriptive tables utilized to analyze the demographic data, (2) means, standard deviations and analysis of variance (ANOVA) to analyze the major pharmacology study categories and (3) comparative analyses on the major pharmacology study categories whose F-ratio indicated significant differences. The .01 level was selected for statistical significance.

Results

Of the 83 schools surveyed, 41 schools responded (49.4 percent response rate overall). (Note: Several schools responded after the study deadline of May 1, 1984, but those data are not reflected in these results.) Eight were schools of optometry (53.3 percent response rate), 19 were schools of medicine (51.3 percent response rate) and 14 were schools of dentistry (45.2 percent response rate). Table 1 presents the states surveyed and the schools whose responses are reflected in the research data. With only one exception (Massachusetts), every state is represented by at least one school type and five states are represented by all school types studied.

The results of the pharmacology study questionnaire in terms of mean responses and statistical comparisons between the study groups in each of the 14 categories are presented in Tables 2, 3 and Figure 1. Table 2 presents means, standard deviations and analysis of variance of classroom hours spent on major pharmacological study categories for the school types. Table 3 shows the comparisons between school type for major pharmacology study category whose F-ratio indicates significant differences. Figure 1 illustrates the total class hours in pharmacology training for schools of optometry, medicine and dentistry.

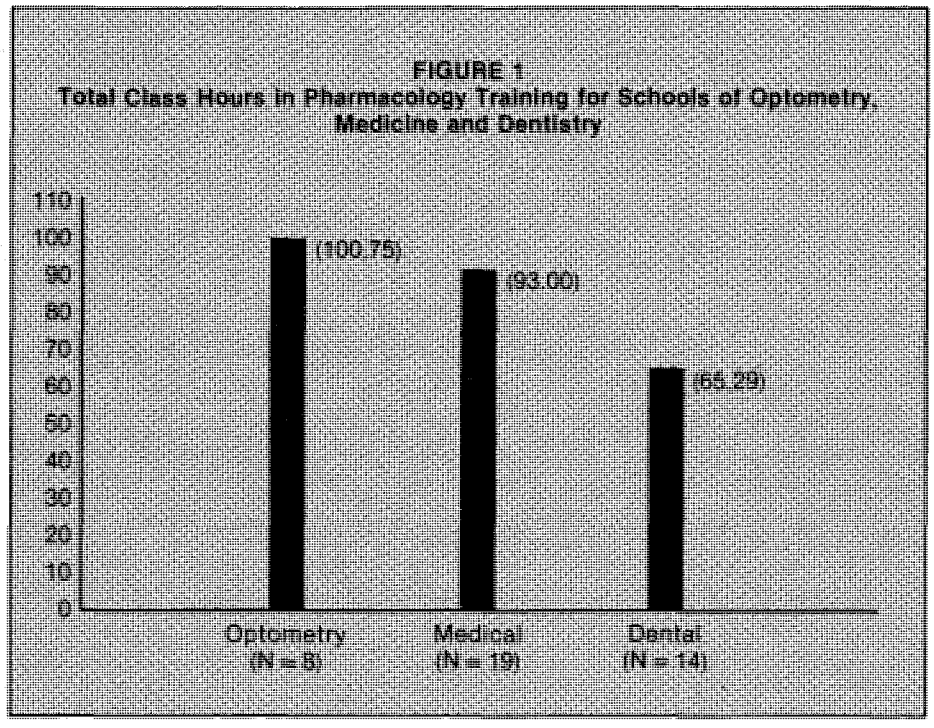
TABLE 1
States surveyed and schools reflected in the research data

State	School Type	Number of Schools Responding
Alabama	Optometry	1
	Medical	2
	Dental	1
California	Optometry	2
	Medical	3
	Dental	1
Illinois	Optometry	1
	Medical	2
	Dental	1
Indiana	Optometry	1
	Medical	1
	Dental	0
Massachusetts	Optometry	0
	Medical	0
	Dental	0
Michigan	Optometry	0
	Medical	1
	Dental	1
Missouri	Optometry	1
	Medical	0
	Dental	0
New York	Optometry	0
	Medical	2
	Dental	1
Ohio	Optometry	1
	Medical	2
	Dental	2
Oklahoma	Optometry	0
	Medical	1
	Dental	1
Oregon	Optometry	0
	Medical	0
	Dental	1
Pennsylvania	Optometry	0
	Medical	2
	Dental	3
Tennessee	Optometry	0
	Medical	2
	Dental	0
Texas	Optometry	1
	Medical	1
	Dental	2
TOTAL		41

Basic Principles in Pharmacology

The range of hours in category 1 of the instrument is 15. Four schools spend only three hours and two spend 18 hours on this category. The overall mean for the entire sample is 8.71 hours. An F-ratio of 5.48 shows that there are significant differences among the three school types in hours spent in this study category.

Schools of optometry are not significantly different than either schools of medicine ($t = 2.51$, $df = 16.2$, $p = .02$) or schools of dentistry ($t = 0.04$, $df = 14.3$, $p = .97$). Medical schools do, however, spend more hours on this category than schools of dentistry ($t = 3.01$, $df = 30.8$, $p = .005$).



Drug Effects on the Nervous System

The second category for comparison within the pharmacology study instrument involves class hours spent studying drug effects on the nervous system. The range of hours was found to be 23 with two schools spending only five hours and one school spending 28 hours on this category.

The mean is 13.24 overall and an F-ratio of 8.61 showed that there are significant differences among the three school types on this category of the instrument. Comparatively, optometrists and dentists do not differ on this category ($t = 0.99$, $df = 13.1$, $p = .922$), whereas medical schools devote more hours than either optometry ($t = 2.97$, $df = 14.8$, $p = .009$) or dental schools ($t = 3.83$, $df = 30.9$, $p = .001$).

Psychopharmacology

The range for hours spent teaching psychopharmacology is 10. The grand mean for this category is 4.75 with the three school types averaging between four and six class hours. According to the calculations, there are no significant differences ($F = 1.74$, $p = .189$/n.s.) among optometry schools ($\bar{X} = 4.37$, $SD = 3.25$), schools of medicine ($\bar{X} = 5.47$, $SD = 2.24$) and schools of dentistry ($\bar{X} = 4.00$, $SD = 1.80$).

Central Nervous System Depressants and Stimulants

The fourth category within the questionnaire involves classroom hours spent on the CNS depressants and stimulants. No significant differences are present among schools of optometry, medicine and dentistry for hours spent in this content area ($F = 1.02$, $p = .368$/n.s.). The three school types average between seven and ten class hours on the CNS depressants and stimulants.

Anesthetics

The hourly range on the instrument category identified as anesthetics is 10. The overall mean for the entire sample is 4.63. Although schools of optometry and medicine are not significantly different in this category ($t = 1.56$, $df = 21.0$, $p = .133$), an F-ratio of 6.91 indicates that significant differences do exist among the three groups. The comparisons between schools on hours spent teaching anesthetics show that schools of optometry require significantly less hours than schools of dentistry ($t = 3.80$, $df = 18.9$, $p = .001$).

Cardiovascular Agents

Category six within the pharmacology study questionnaire deals with cardiovascular agents. An F-ratio of 14.31 shows that significant differences exist among the school types on this category. According to the analysis, optometry schools and schools of dentistry do not differ on this category ($t = 1.24$, $df = 19.8$, $p = .229$). The mean hours for schools of medicine ($\bar{X} = 12.26$) fall above the grand mean of 9.49 and indicate that medical schools spend more time on cardiovascular agents than dental schools and schools of optometry (Med vs Den, $t = 3.74$, $df = 23.8$, $p = .001$; Med vs Opt, $t = 6.41$, $df = 20.7$, $p = .000$).

Ocular Pharmacology

The seventh category within the instrument asks for classroom hours spent on ocular pharmacology. The overall mean hours spent by the sample schools is 7.12. According to the data, schools of optometry average ($\bar{X} = 34.00$) more than the grand mean whereas medical and dental schools spend less time than the overall average ($\bar{X} = 0.63$ and 0.57 respectively). All three groups had relatively large standard deviations that indicate extensive variability.

The results of the analysis of variance (ANOVA) show that there are statistically significant differences among the groups on this category of the pharmacology study questionnaire. The comparative analyses show that optometry schools spend more hours than schools of medicine ($t = 8.97$, $df = 7.0$, $p = .000$) and schools of dentistry ($t = 8.94$, $df = 7.0$, $p = .000$) teaching ocular pharmacology to their students.

TABLE 2
Means, Standard Deviations and Analysis of Variance of Class Lecture Hours Spent on Major Pharmacological Study Categories by Optometry, Medical and Dental Schools

Category	Optometry N = 8 $\bar{X}$ (SD)	Medical N = 19 $\bar{X}$ (SD)	Dental N = 14 $\bar{X}$ (SD)	Grand Mean (SD)	F-ratio	F
Basic Principles in Pharmacology	7.12 (3.04)	10.58 (3.75)	7.07 (2.95)	8.71 (3.36)	5.48	*
Drug Effects on Nervous System	10.75 (4.23)	16.26 (4.76)	10.57 (3.71)	13.24 (4.33)	8.61	**
Psycho-pharmacology	4.37 (3.25)	5.47 (2.24)	4.00 (1.80)	4.75 (2.37)	1.74	n.s.
CNS Stimulants and Depressants	7.75 (3.72)	9.89 (4.21)	8.57 (3.20)	9.02 (3.64)	1.02	n.s.
Anesthetics	3.12 (1.13)	4.05 (1.93)	6.29 (2.73)	4.63 (2.13)	6.91	*
Cardiovascular Agents	6.12 (1.88)	12.26 (2.99)	7.64 (3.83)	9.49 (3.15)	14.31	***
Ocular Pharmacology	34.00 (10.57)	0.63 (0.89)	0.57 (0.65)	7.12 (4.59)	170.14	***
Respiratory and GI Tract Agents	2.00 (1.77)	3.26 (1.66)	2.29 (2.02)	2.68 (1.85)	1.88	n.s.
Endocrine Pharmacology	5.50 (2.83)	7.11 (3.40)	4.14 (2.51)	5.78 (3.23)	3.93	n.s.
Chemotherapy	8.37 (4.75)	14.05 (5.50)	8.64 (4.24)	11.10 (4.96)	6.28	*
Poisons and Antidotes	1.00 (1.07)	3.31 (2.56)	1.35 (1.22)	2.19 (1.96)	5.90	*
Drug Interactions	1.50 (0.93)	1.47 (0.70)	1.71 (0.99)	1.56 (0.84)	0.35	n.s.
Prescription Writing	1.12 (0.64)	1.11 (0.87)	1.64 (1.15)	1.29 (0.95)	1.46	n.s.
Total Hours in Pharmacology	100.75 (14.24)	93.00 (15.47)	65.29 (19.40)	85.05 (16.71)	15.46	***

*p < .01 **p < .001 ***p < .0001

Respiratory and Gastrointestinal Tract Agents

An analysis of variance (ANOVA) conducted on responses to category eight of the instrument indicate that optometry, medical and dental schools are not significantly different ($F = 1.88$, $p = .166$/n.s.) in terms of hours spent teaching respiratory and GI tract agents. The overall mean, in terms of hours, is 2.68 and the schools devote an average of two to four hours on this category.

Endocrine Pharmacology

The ninth category within the pharmacology study questionnaire deals with hours spent teaching endocrine pharmacology. An F-ratio of 3.93 ($p = .028$/n.s.) indicates that no significant differences exist among the school types in terms of hours devoted to this category. All three school types are close to the grand mean of 5.78 class hours.

Chemotherapy

The range of hours the school types spend teaching chemotherapy is 30. Over 40 percent of the schools studied

TABLE 3
Comparisons Between School Type for Significant Differences ($p < .01$) on Major Pharmacology Study Category

		t-ratio	df	t Probability
Basic Principles in Pharmacology	Optometry and Medical	2.51	16.2	.023
	Optometry and Dental	0.04	14.3	.969
	Medical and Dental	3.01	30.8	.005*
Drug Effects on the Nervous System	Optometry and Medical	2.97	14.8	.009*
	Optometry and Dental	0.10	13.1	.922
	Medical and Dental	3.86	30.9	.001*
Anesthetics	Optometry and Medical	1.56	21.9	.133
	Optometry and Dental	3.80	18.9	.001*
	Medical and Dental	2.62	22.2	.016
Cardiovascular Agents	Optometry and Medical	6.41	20.7	.000*
	Optometry and Dental	1.24	19.8	.229
	Medical and Dental	3.74	23.8	.001*
Ocular Agents	Optometry and Medical	8.97	7.0	.000*
	Optometry and Dental	8.94	7.0	.000*
	Medical and Dental	0.22	31.0	.820
Chemotherapy	Optometry and Medical	2.70	15.3	.020
	Optometry and Dental	0.13	15.3	.890
	Medical and Dental	3.19	30.9	.003*
Poisons and Antidotes	Optometry and Medical	3.31	25.0	.003*
	Optometry and Dental	0.77	16.4	.480
	Medical and Dental	2.92	27.2	.007*
Total Lecture Hours in Pharmacology	Optometry and Medical	1.26	14.3	.230
	Optometry and Dental	4.90	18.5	.000*
	Medical and Dental	4.41	24.2	.000*

*$p < .01$

spend 10 hours or less on this category while only five percent spend more than 20 hours. The grand mean for this category is 11.10 hours. The ANOVA indicates that significant differences ($F = 6.28$) exist among the school type in terms of hours spent teaching chemotherapy.

Optometry schools are not significantly different than medical schools ($t = 2.70$, $df = 15.3$, $p = .02$) or schools of dentistry ($t = 0.13$, $df = 15.3$, $p = .89$). Dental and medical schools are significantly different ($t = 3.19$, $df = 30.9$, $p = .003$), however, with medical schools spending more time on chemotherapy than dental schools.

Poisons and Antidotes

Category eleven within the pharmacology study questionnaire asks for the number of hours the school types spend on poisons and antidotes. An F-ratio of 5.90 indicates that there are significant differences among the school types on this category. A comparative analysis between school type shows that medical schools spend more time than schools of optometry and dentistry (Med vs Opt, $t = 3.31$, $df = 25.0$, $p = .003$; Med vs Den, $t = 2.92$, $df = 27.2$, $p = .007$) but that optometry and dental schools do not differ on hours spent teaching poisons and antidotes ($t = .88$, $df = 16.4$, $p = .48$).

Drug Interactions

The overall mean within school types for this category of the instrument is 1.56 hours. All three school types average approximately one and a half hours teaching drug interactions. An analysis of variance ($F = 0.35$, $p = .71$/n.s.) conducted on this category indicates that schools of optometry, dentistry and medicine are not significantly different in terms of hours spent on category twelve.

Prescription Writing

The thirteenth category within the pharmacology study questionnaire involves responses relating to hours spent on prescription writing. No significant differences are found among the school types ($F = 1.46$, $p = .24$/n.s.) with all three school types devoting approximately one hour on this category.

Total Hours in Pharmacology

The last category for comparison within the pharmacology study questionnaire deals with the total classroom hours the school types spend studying pharmacology. The range of hours is 88. Of the schools surveyed, one school

spends only 39 hours teaching pharmacology whereas another spends 127. The overall average within the school types is 85.05 hours. Figure 1 shows a graphic comparison for total class hours in pharmacology training for schools of optometry ($\bar{X} = 100.75$), medicine ($\bar{X} = 93.00$) and dentistry ($\bar{X} = 65.29$).

An analysis of variance indicates that significant differences exist among the groups for total hours spent teaching pharmacology. Comparisons between schools show that no significant differences exist between optometry and medical schools ($t = 1.26$, $df = 14.3$, $p = .23$). This is consistent with what Hegeman found when she compared the pharmacology content for optometry and medical students at Indiana University, Bloomington.[19] Both schools of optometry and medicine devote more total class hours than schools of dentistry to the study of pharmacology (Opt vs Den, $t = 4.90$, $df = 18.5$, $p = .000$; Med vs Den, $t = 4.41$, $df = 24.2$, $p = .000$).

Conclusions

The safety of the pharmaceuticals in question and the need for optometrists to use such agents has been established. In the opinion of some members of the medical community, optometrists are not properly educated in the area of pharmacology, thus unqualified to utilize pharmaceuticals. However, there is no justification for this belief on the basis of the data presented. Some ophthalmologists are presumptuous enough to believe that they are the only persons qualified to conduct comprehensive eye examinations.[20] This may be due to their lack of knowledge regarding academic training for optometrists.

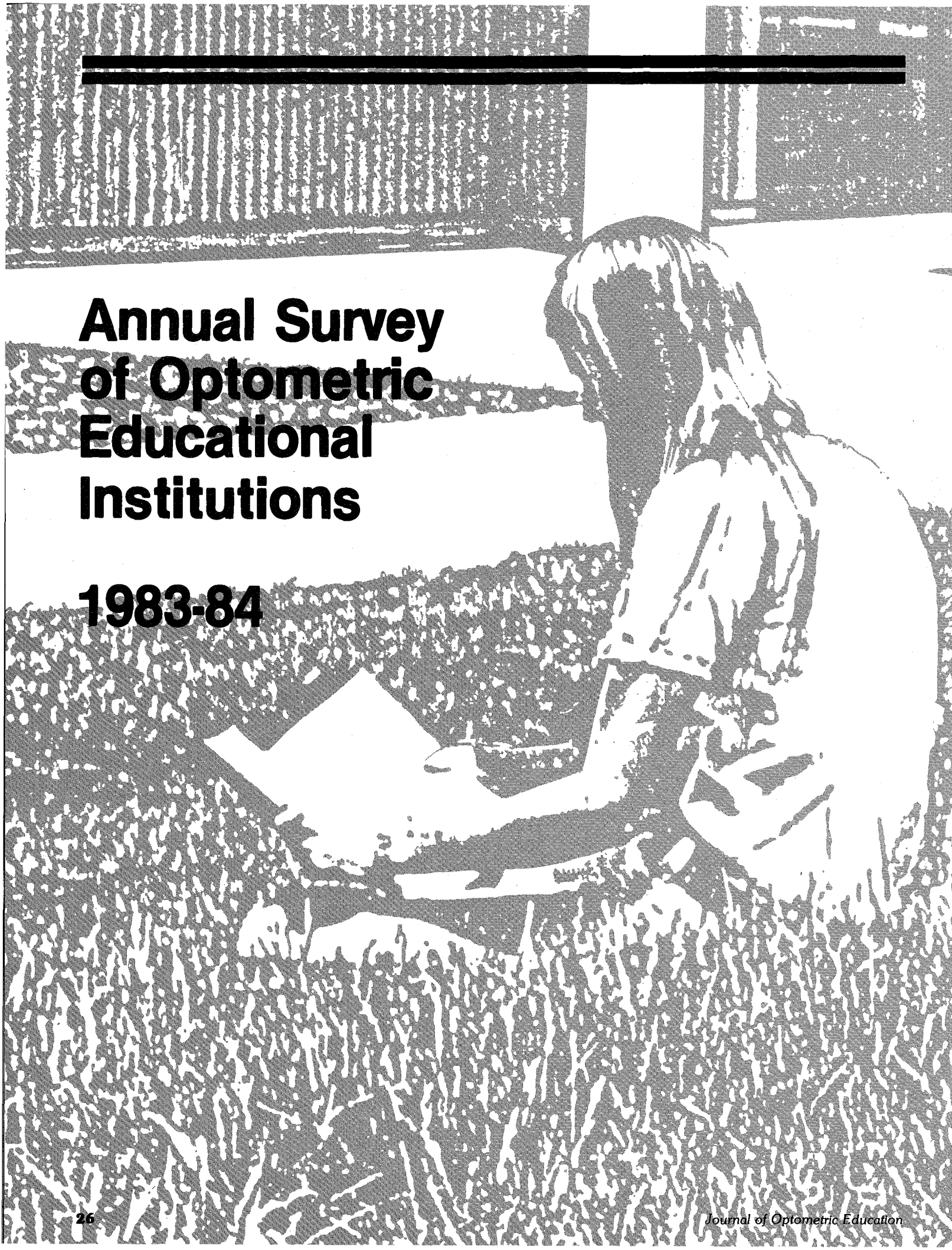
Based upon the results of this study, optometrists receive sufficient training in the area of pharmacology. In no category were optometrists significantly lower than both medicine and dentistry. This indicates that optometry offers at least as much training in any study area as one of the other two health professions.

The significant differences present among the groups can be attributed to the professional requirements. Ocular pharmacology is emphasized for optometry while dentistry spends more time studying anesthetics and medicine, concentrates on cardiovascular agents, drug effects on the nervous system and poisons and antidotes. Therefore, all optometrists should be permitted to utilize ocular pharmaceutical agents in order to provide the maximum benefit and service to the public. □

References

1. Antony ML: "Letter to the Louisiana Ophthalmology Association" in Ophthalmic Physicians Education Network, 1976, pp. 29-30.
2. Jordan JS: "Letter to Senator Mellow" in Oklahoma Optometric Association, RE: HB 1316, 1981.
3. Duckett LR: "Letter to Senators Field and Kamas" in Oklahoma Optometric Association, RE: HB 1316, 1981.
4. American Optometric Association. Information for applicants to schools and colleges of optometry. A.O.A. Publication, No. CG-25-80, 1981.
5. Peters HB: Public health and the practicing optometrist, in Newcomb RD, Jolley JL (eds): *Public Health and Community Optometry*. Springfield, Charles C. Thomas, 1980, p. 12.
6. American Optometric Association. Information for applicants to schools and colleges of optometry. A.O.A. Publication, No. CG-25-80, 1981.
7. American Optometric Association. Optometry and the nation's health: Recommendations for the implementation of Congress' National Health Priorities. A.O.A., 1982.
8. American Optometric Association. Optometry and the nation's health: Recommendations for the implementation of Congress' National Health Priorities. A.O.A., 1982.
9. *Facts About Medical and Dental Practitioners, United States*. DHEW Publication No. (HRA) 76-82, US Dept of Health, Education and Welfare, Bureau of Health Manpower, 1980.
10. Whitener JC: Population trends, in Newcomb RD, Jolley JL (eds): *Public Health and Community Optometry*. Springfield, Charles C. Thomas, 1980, p. 62.
11. American Optometric Association. Optometry and the nation's health: Recommendations for the implementation of Congress' National Health Priorities. A.O.A., 1982.
12. Garston JR: A closer look at diagnostic drugs for optometric use. J Am Optom Assoc, 1975; 46(1): 39-43.
13. Yolten DP, Dandel JS, Yolten RL: Diagnostic pharmaceutical agents: side effects encountered in a study of 15,000 applications. J Am Optom Assoc, 1980; 51(2): 113-117.
14. Jose JG, Polse KA, Holden EK: *Optometric Pharmacology*. New York, Harcourt, Brace & Jovanovich, 1984, pp 117-142.
15. Transcript of the testimony by Dr. James F. Koetting "Urging support of HB 104 permitting optometrists to use topically applied pharmaceutical agents in the examination of the eye and the evaluation of vision" before the Subcommittee on Health, Committee on Pension, Social Welfare and Public Health, Mississippi House of Representatives, January 26, 1981.
16. Transcript of the testimony by Dr. James F. Koetting "Urging support of HB 104 permitting optometrists to use topically applied pharmaceutical agents in the examination of the eye and the evaluation of vision" before the Subcommittee on Health, Committee on Pension, Social Welfare and Public Health, Mississippi House of Representatives, January 26, 1981.
17. Godio LB, Rubin BK, Simons MH: Research methodology and statistics, in Newcomb RD, Jolley JL (eds): *Public Health and Community Optometry*. Springfield, Charles C. Thomas, 1980, p. 92.
18. Goth A: *Medical Pharmacology*, ed 10. St. Louis, Mosby, 1981, pp ix-xi.
19. Hegeman S: Comparison of pharmacology courses for optometry and medical students. J Optom Educ, 1983; 9(1): 22-23.
20. Antony ML: "Letter to the Louisiana Ophthalmology Association" in Ophthalmic Physicians Education Network, 1976, pp 29-30.

The institutional affiliation of Dr. Rogers Reading was incorrectly identified on page 23 of the Summer 1984 (Volume 10, Number 1) issue of JOE. Dr. Reading is a long-time and respected faculty member at Indiana University School of Optometry. JOE regrets the error.



Annual Survey of Optometric Educational Institutions

1983-84

The following is a summary of portions of the 1983-84 Annual Survey of Optometric Educational Institutions conducted by the American Optometric Association Council on Optometric Education. The accompanying tables highlight information on student enrollment, academic achievement, financial aid and student expenditures for the year 1983-84. This report is published as an annual feature of JOE.

Student Enrollment

Total student enrollment for the academic year 1983-84 was 4,539; this represented a decrease of less than 1% (.54%) over the previous year's enrollment of 4,561. First-year students totaled 1,187; this represented an increase of 5.9% from the previous year's 1,120.

Female enrollment increased by 10.05% from 1,173 students in 1982-83 to 1,291 students in 1983-84 and women represented more than one-fourth (28.4%) of the total enrollment. The number of women in the 1983-84 entering class comprised 34.2% (406 students) compared to 29.3% (328 students) in 1982-83; this represented an increase of 23.8%.

Minority enrollment accounted for 12.87% (584 students) of the student body in 1983-84 compared to 12.17% (555 students) in 1982-83; this represented an increase of 5.2% over the previous year. This year's increase in minority enrollment indicated a continuing climb in the percentage of minority enrolled in the schools and colleges of optometry over the past five years. Minority enrollment represented 8.07% of the total student body in 1978-79, 8.78% in 1979-80, 9.52% in 1980-81, 10.66% in 1981-82, 12.17% in 1982-83 and 12.87% in 1983-84.

Women accounted for 37.3% (218 students) of minorities enrolled in 1983-84, compared to 37.8% in 1982-83. Of minorities enrolled, 50.2% were Asian American, 21.1% Spanish surname, 15% Black American, 10.6% foreign national and 3.1% native American Indian.

Academic Achievement

More than two-thirds of the entering class in 1983-84, 66.4% (775 students), had four or more years of prior college work before entering optometry school. In addition, the majority of this class, 60.7% or 709 students, had a baccalaureate or higher degree, whereas only 5.6% or 66 students were reported having 4+ years of prior college work. The number of entering students having four or more years of college represented an increase of 4.3% from the 1982-83 total of 743 students (67.4% of the entering class); also the number of students having a baccalaureate or higher degree increased by 4.1% from 1982-83's total of 681 students. It should be noted, however, that the total number of students reported in this table also showed an increase of 6%.

Of the remaining first year students, 9% had 2+ years of prior college work, and 24.7% had 3+ years.

The mean grade point average for entering students in 1983-84 was 3.16, declining from 3.17 in 1982-83. Fourteen of the sixteen U.S. optometric educational institutions had mean grade point averages of 3.0 or better, and four of these institutions had mean grade point averages of 3.25 or better. These grade point averages were based on a total of 1,190 entering students reported in *Information for Applicants to Schools and Colleges of Optometry*, Fall, 1985, published by the American Optometric Association in cooperation with the Association of Schools and Colleges of Optometry.*

Financial Aid

The amount of aid granted through institutions other than loans** for the academic year 1983-84 is given in percentages for fifteen of the U.S. institutions. Also, the amount of student loans granted through institutions for 1983-84 is given in the same manner. These show the percentage of students receiving aid in each of the four classes, percentage of average aid and the percentage from federal and state sources. These amounts previously were reported in dollars on past surveys; therefore, it is impossible to make any comparisons between years or to determine any increases or decreases in amounts, types or sources of aid for the academic year 1982-83.

Student Expenditures

Annual student expenditures for tuition, fees, books, supplies and other costs excluding living expenses ranged from $1,850 to $8,008 for residents and $2,180 to $12,470 for non-residents in 1983-84. The mean average expenditure for costs other than room and board was $4,669 for residents and $8,154 for non-residents. These figures represented a decrease of .80% for residents and an increase of 2.43% for non-residents over the 1982-83 mean costs of $4,707 and $7,960 respectively.*

The average expenditures for room and board in 1983-84 ranged from $2,312 to $5,571. The mean average expenditure was $3,521; this represented an increase of 7% over the previous year's $3,291.

Taken altogether, the mean average cost of education for an optometry student in 1983-84 totaled $8,190 for residents and $11,675 for non-residents. These figures represented increases of 2.4% and 3.76%, respectively, over the costs of $7,998 and $11,251 in 1982-83.***

**Information for Applicants to Schools and Colleges of Optometry*, Fall, 1984, St. Louis, Missouri: American Optometric Association.

****Includes scholarships, fellowships, grants in aid, etc.

******1982-83 mean costs for residents and non-residents were adjusted downward to reflect the corrected SUNY figures that appeared in Volume 10, Number 1 issue of JOE.

The following abbreviations have been used in the accompanying tables.

Schools

FSC — Ferris State College
IAU — InterAmerican University of Puerto Rico
ICO — Illinois College of Optometry
IU — Indiana University
NECO — New England College of Optometry
NSU — Northeastern State University
PU — Pacific University
PCO — Pennsylvania College of Optometry
SCCO — Southern California College of Optometry
SCO — Southern College of Optometry
SUNY — State University of New York
TOSU — The Ohio State University
UAB — University of Alabama in Birmingham
UCB — University of California, Berkeley
UH — University of Houston
UMSL — University of Missouri-St. Louis

Profile of 1983 Entering Class

Grade Point Averages (4.0 Scale)

	High	Low	Mean	Number of Students
FSC	3.85	2.83	3.34	32
IAU	3.72	2.20	2.96	32
ICO	3.84	2.50	3.02	141
IU	N/A	N/A	3.40	60
NECO	3.77	2.17	3.02	86
NESU	3.67	2.63	3.16	24
PCO	3.90	2.50	3.02	157
PU	4.00	2.26	3.07	88
SCCO	4.00	2.75	3.23	97
SCO	3.82	2.05	2.91	110
SUNY	4.00	2.50	3.22	63
TOSU	3.98	2.75	3.35	60
UAB	3.86	2.64	3.29	40
UCB	4.00	2.20	3.22	68
UMSL	3.94	2.61	3.23	100
UH	3.90	2.10	3.20	32
Total				

SOURCE: *Information for Applicants to Schools and Colleges of Optometry, Fall, 1985. St. Louis, Mo: American Optometric Association.* *N/A—Not Available*

1983-84 Annual Survey of Optometric Educational Institutions

Number of First Year Students Enrolled with:

	2+ Yrs.	3+ Yrs.	4+ Yrs.	B.A., B.S.	M.A., M.S.	Ph.D.	TOTAL
FSC	13	6	8	4	0	0	31
ICO	24	42	4	69	2	0	141
IU	13	22	6	18	1	0	60
NECO	0	0	11	75	0	10	96
NSU	4	9	4	6	1	0	24
PCO	0	40	0	113	4	0	157
PU	15	13	6	51	3	0	88
SCCO	1	19	16	58	2	1	97
SCO	18	30	5	55	2	0	110
SUNY	0	6	0	53	3	1	63
TOSU	25	12	3	20	0	0	60
UAB	0	6	2	30	2	0	40
UCB	0	32	2	32	2	0	68
UH	0	25	4	67	3	1	100
UMSL	0	7	1	23	1	0	32
U.S. TOTALS	105	288	66	670	26	13	1167

1983-84 Annual Survey of Optometric Educational Institutions

	Financial Aid Granted Through Institutions Excluding Loans							Student Loans Granted through Institutions					
	Percentage of Students Receiving Aid					From	From	Percentage of Students Receiving Loans					
	1st Year	2nd Year	3rd Year	4th Year	Average	Federal	State	1st Year	2nd Year	3rd Year	4th Year	Average	Federal
FSC	44	50	19	3	29	37	63	74	56	87	81	74	44
ICO	14	17	15	40	22	59	19	79	85	89	85	84	99
IU	8	11	7	2	7	0	2	33	33	36	28	32	95
NECO	46	40	52	43	45	37	51	83	87	77	66	78	100
NSU	45	70	30	25	42	65	30	75	65	73	60	68	25
PCO	10	5	5	5	6	25	25	85	85	85	85	85	99
PU	10	8	12	14	11	7	88	18	18	20	20	19	100
SCCO	24	33	40	50	37	1	99	76	88	85	82	83	100
SCO	0	0	0	0	0	n/a	n/a	21	43	43	30	35	90
SUNY	60	62	60	48	58	30	51	98	98	98	98	98	98
TOSU	21	40	28	17	26	0	6	19	42	43	24	32	92
UAB	15	8	10	3	9	0	68	65	78	88	60	73	99
UCB	6	7	4	5	6	0	46	33	35	42	23	33	89
UH	unk	30	17	22	unk	unk	unk	unk	56	52	58	unk	unk
UMSL	12	12	13	n/a	12	unk	unk	68	88	90	n/a	82	92

1983-84 Annual Survey of Optometric Educational Institutions

Annual Student Expenditures

	Resident Educational Expenditures					Non-Resident Educational Expenditures					Average Room & Board Expenditures
	1st Year	2nd Year	3rd Year	4th Year	Average	1st Year	2nd Year	3rd Year	4th Year	Average	
FSC	$6,949	$6,200	$6,498	$7,108	$6,689						$2,312
ICO						8,991	8,571	8,171	9,216	8,737	3,480
IU	4,314	7,132	5,789	3,768	5,251	6,139	9,157	7,915	5,293	7,126	2,715
NECO						9,890	9,585	9,658	7,270	9,101	5,571
NSU	3,320	2,488	2,633	1,890	2,583						3,562
PCO	7,955	7,240	6,555	5,990	6,935	11,955	11,240	10,555	9,990	10,935	3,904
PU						10,270	8,970	8,670	8,320	9,057	2,370
SCCO						8,081	8,164	7,108	6,641	7,498	3,746
SCO	7,810	8,008	8,070	4,720	7,152	12,210	12,408	12,470	9,120	11,552	4,296
SUNY	7,120	6,620	6,120	5,620	6,370	9,800	9,300	8,800	8,300	9,050	4,500
TOSU	3,846	3,873	3,921	3,501	3,785	8,346	8,376	8,451	8,001	8,293	4,221
UAB	3,113	3,590	4,120	2,379	3,301	4,313	4,790	5,320	3,579	4,501	2,682
UCB	2,850	1,850	2,300	1,850	2,213	6,210	5,210	5,660	5,210	5,573	3,327
UH	4,150	1,934	1,323	1,180	2,147	5,150	2,934	2,323	2,180	3,147	3,691
UMSL	5,107	4,613	5,691	4,338	4,937	11,607	11,113	12,191	10,838	11,437	2,438

1983-84 Annual Survey of Optometric Educational Institutions

Full-Time Students Enrolled in the Professional Degree Program

	First Year		Second Year		Third Year		Fourth Year		TOTALS		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Total
FSC	21	10	23	5	24	6	26	4	94	25	119
ICO	97	44	87	23	105	26	127	22	416	115	531
IU	44	17	41	24	39	26	45	23	169	90	259
NECO	60	36	56	19	62	29	61	31	239	115	354
NSU	21	3	19	6	20	3	18	4	78	16	94
PCO	94	68	93	42	101	37	111	38	399	185	584
PU	77	11	65	18	72	11	67	18	281	58	339
SCCO	61	36	67	30	64	31	68	25	260	122	382
SCO	90	31	86	18	98	16	123	16	397	81	478
SUNY	28	35	32	25	33	27	34	25	127	112	239
TOSU	42	20	43	14	44	14	45	14	174	62	236
UAB	25	16	29	14	24	13	22	13	100	56	156
UCB	40	28	41	24	41	23	47	25	169	100	269
UH	60	40	63	29	68	30	66	22	257	121	378
UMSL	21	11	24	8	17	9	26	5	88	33	121
U.S. TOTALS	781	406	769	299	812	301	886	285	3248	1291	4539

1983-84 Annual Survey of Optometric Educational Institutions

Minority Group Students Enrolled

	Black American		Spanish Surname		Native American Ind.		Asian Amer.		Foreign Nationals		TOTALS			% of Student
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Total	body
FSC	1	0	0	0	0	0	0	0	1	0	2	0	2	1.68
ICO	4	2	12	2	0	0	19	10	5	1	40	15	55	10.36
IU	5	6	7	1	1	0	2	3	1	0	16	10	26	10.44
NECO	3	1	1	0	0	0	7	2	6	4	17	7	24	6.78
NSU	0	0	2	0	7	3	0	0	0	0	9	3	12	12.77
PCO	9	10	5	4	0	0	10	9	6	3	30	26	56	9.59
PU	0	0	8	0	0	0	29	9	10	1	47	10	57	16.81
SCCO	1	3	9	9	0	0	47	35	0	0	57	47	104	27.23
SCO	5	6	10	1	1	1	7	2	5	0	28	10	38	7.95
SUNY	2	5	5	3	0	0	3	4	1	0	11	12	23	9.62
TOSU	2	0	0	0	0	0	0	1	0	0	2	1	3	1.27
UAB	4	2	0	2	0	0	0	1	0	0	4	5	9	5.77
UCB	6	4	16	4	1	1	38	38	0	0	61	47	108	40.15
UH	2	1	15	7	2	0	9	6	10	7	38	21	59	15.61
UMSL	2	2	0	0	0	1	2	0	0	1	4	4	8	6.61
U.S. TOTALS	46	42	90	33	12	6	173	120	45	17	366	218	584	12.87

Vergence Eye Movements: Basic and Clinical Aspects. Clifton M. Schor, O.D., Ph.D. and Kenneth J. Ciuffreda, O.D., Ph.D., eds., and 25 contributors. Butterworths, Woburn, MA, 1983, 726 pp., illus., hardbound, $79.95.

Vergence Eye Movements is a text that will interest clinicians, researchers and students alike. It comprehensively presents the area of binocular vision and vergence eye movements in terms of both clinical theory and new research. The book is conveniently presented as 21 chapters organized into seven topical sections. A strength of the text is that it cohesively combines the expertise of many expert clinical and basic science authors.

The clinician that treats vergence disorders will find valuable information throughout the text. The last 300 pages are strongly clinical and present material that until now was not available in textbook format. The subjects of graphical analysis, fixation disparity, strabismus and vergence dynamics are especially well handled by the authors.

The editors have produced a unique and invaluable textbook that has high relevance in education, research and patient care. It should be a required volume for optometry students as well as a standard reference for those working in the area.

Guest Reviewer: Mitchell M. Scheiman, O.D., Associate Professor, Pennsylvania College of Optometry.

Ocular Assessment—The Manual of Diagnosis for Office Practice. Barry J. Barresi, O.D., ed., and eleven contributors. Butterworths, Woburn, MA, 1984, 538 pp., illus., hardbound, $49.95.

Ocular Assessment is an interesting text, which discusses the diagnosis and management of a wide variety of eye disorders. It is written by a group of actively practicing primary eye care clinicians who are also members of the teaching faculties of several optometry schools. This helps to make the material presented both clinically relevant and academically sound.

The editor opens with a chapter describing the problem-oriented approach to health care which has been described and popularized by noted medical educator, Dr. Lawrence Weed. This problem solving method is then consistently applied to each chapter.

Included in the conditions discussed are refractive error, binocular anomalies, anterior segment disorders, posterior pole problems and neuro-eye disturbances. In addition, there is discussion of the approach to assessment of patients presenting with certain categories of chief complaint such as vision loss, ocular discomfort, episodic visual disturbance, diplopia and headache.

This book is well written in an easy-to-read style. It is useful as a course textbook and for ready clinical reference. It is highly recommended for the clinician interested in improving the care she/he renders.

Computed Tomography of the Eye and Orbit by Steven B. Hammerschlag, M.B.B., Ch., John R. Hesselink, M.D., and Alfred L. Weber, M.D. Appleton-Century-Crofts, Norwalk, Conn., 1983, 267 pp., illus., hardbound, $55.00.

Computed Tomography of the Eye and Orbit is a clinical text that presents the many important uses of the CT scan in diagnosing ocular and orbital disorders.

After brief opening chapters on anatomy and technique the authors discuss the tomographic workup and diagnosis of a wide variety of orbital problems including neoplasms, vascular disorders and inflammations. The topical chapters discuss the clinical and CT manifestations of each disease considered and then are followed by several succinctly presented case reports with diagnosis and followup. The text is repleat with representative orbital CT scans that effectively illustrate the various presentations.

The interested clinician will find this text an easy way to learn about this increasingly important technique.

Retinal Detachment and Allied Diseases, by Charles L. Schepens, M.D., W.B. Saunders, 1982, 1155 pp., in two illus. vols., hardbound, $115 ea. or $220 set.

Presented in two volumes, Retinal Detachment and Allied Diseases is an extensive and detailed discussion of vitreo-retinal pathology and its management. This informative text provides an excellent review of pertinent ocular anatomy, pathological conditions and examination techniques. Management is thoroughly covered on a non-surgical, out-patient surgical and in-patient surgical basis.

The text has specific strengths for the optometrist including its in-depth treatment of the risk factors and mechanisms of retinal breaks, as well as an organized presentation of the examination techniques required to properly evaluate the vitreo-retinal cavity. The primary care practitioner will also be kept abreast, in later chapters, of the more complex surgical procedures now in vogue, thereby enabling better discussion in advising patients.

Finally, this work is beautifully illustrated by noted artist D.A. Tilden. The many color and black and white drawings are very effective in helping the reader understand the often difficult concepts surrounding vitreo-retinal pathology. This text is a must.

Clinical Ocular Pharmacology. Jimmy D. Bartlett, O.D. and Siret D. Jaanus, Ph.D., eds., and 24 contributors. Butterworths, Woburn, MA, 1984, 978 pp., illus., hardbound, $69.95.

Clinical Ocular Pharmacology presents a comprehensive approach to the theory and practice of ocular drug utilization.

The authors open with theoretical pharmacological concepts and then, chapter by chapter, discuss the pharmacology of various important categories of diagnostic and therapeutic ocular drugs. The later half of the book addresses the clinical use of pharmaceutical agents in the diagnosis and treatment of a wide variety of specific ocular diseases. Finally, toxicological reactions are covered in the closing chapters.

Because the style is clinical it will be useful for in-office use. However, the text is extensive and in-depth in its presentation making it an appropriate course textbook. These facts combined with its very strong orientation toward eye treatment make it a very significant contribution to the eye care literature. It is highly recommended.

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