The Standardized 2-Dimensional PMP Comparison of Pharmacology Courses Computer Simulation as an Optometric Educational Tool

### **ASSOCIATION of SCHOOLS and COLLEGES of OPTOMETRY**

The Association of Schools and Colleges of Optometry (ASCO) represents the professional programs of optometric education in the United States and Canada. ASCO is a non-profit, tax-exempt professional educational association with national headquarters in Washington, D.C.

### BOARD OF DIRECTORS

Dr. Boyd B. Bamwell President Illinois College of Optometry Chicago, Illinois

Dr. Gordon G. Heath, Dean Indiana University School of Optometry Bloomington, Indiana

Dr. Richard L. Hopping, Pres. Southern California College of Optometry Fullerton, California

Dr. F. Dow Smith, Pres. The New-England College of Optometry

Hoston: Massachusetts

Dr. Jack W. Bennett, Dean Ferris State College College of Optometry Bid Rapids, Michigan

Dr. Willard Bleything, Dean Pacific University College of Optometry Forest Grove, Oregon Dr. Melvin D. Wolfberg, Pres Pennsylvania College of Optometry Philadelphia, Pennsylvania

Dr. Spurgeon B. Eure, President Souttern College of Optometry Memphis, Tennessee

Dr. Edward R. Julinston, Pres. State University of New York College of Optometry New York, New York

Dr. Frederick W. Hebbard, Dean Ohio State University College of Optometry Columbus, Ohio

Dr. Henry B. Peters, Dean University of Alabama School of Optometry Birmingham, Alabama

Dr. Jay M. Enoch, Dean University of California School of Optometry Berkeley, California

Dr. William R. Baldwin, Dean University of Houston College of Optometry Houston, Texas

Lee W. Smith Executive Director, ASCO



President
Richard L. Hopping, O.D.
President, Southern California
College of Optometry



Vice-President
Edward R. Johnston, O.D., M.P.A.
President, State University of New York
State College of Optometry



Vice-President Jack W. Bennett, O.D. Dean, Ferris State College College of Optometry



Secretary-Treasurer F. Dow Smith, Ph.D. President, The New England College of Optometry

#### Editorial Council

John F. Amos, O.D., Chairman University of Alabama in Birmingham School of Optometry

Henry W. Hofstetter, O.D., Ph.D. Indiana University School of Optometry

Penelope Kegel-Flom, Ph.D, University of Houston School of Optometry

Thomas L. Lewis, O.D., Ph.D. Pennsylvania College of Optometry

Robert Rosenberg, O.D. State University of New York State College of Optometry

## Table of Contents Summer, 1983 Volume 9, Number 1

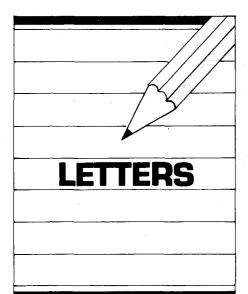
# JOURNAL OF OPTONETRIC EDUCATION

Official Publication of the Association of Schools and Colleges of Optometry

The Standardized 2-Dimensional PMP: A New Assessment Technique in Optometric Credentialing and Education  Leon J. Gross, Ph.D.	
The author presents the pros and cons of present patient management problem (PMP) examinations and a refined model for possible use in the NBEO evaluation of clinical problem solving ability.	8
Association of Schools and Colleges of Optometry Annual Report, 1982-83	
The progress in achieving the Association's stated goals to serve and improve optometric education and further the purposes of ASCO are reported.	12
Comparison of Pharmacology Courses for Optometry and Medical Students, Indiana University, Bloomington Sally Hegeman, Ph.D.	
An analysis of the faculty capability, course content and relationship to career needs of the pharmacology training of medical and optometry students is presented.	22
Computer Simulation as an Optometric Educational Tool Harris Nussenblatt, O.D., M.P.H.	· · · · · · · · · · · · · · · · · · ·
Adaptation of an industry model provides for optometric practice management experience through simulation in the classroom.	24
DEPARTMENTS	
Letters	4
Editorial: "On Solid Footing"  John F. Amos, O.D., Chairman, Editorial Council	5
Newsampler	6
NEI Report	11
Announcements	30

Typesetting: Bobbie Peters Graphics

The JOURNAL OF OPTOMETRIC EDUCATION is published by the Association of Schools and Colleges of Optometry (ASCO). Managing Editor: Herrist E. Long, Art Director: Den Hildt. Graphics in General, Business and editorial offices are located at 600 Maryland Ave., S.W., Suite 410, Washington, D.C. 20024. Subscriptions: JOE is published quarterly and distributed at no charge to dues paying members of ASCO. Individual subscriptions are available at \$10.00 per year, \$15.00 per year to foreign subscribers. Postage paid for a non-profit, tax-exempt organization at Washington, D.C. Copyright © 1983 by The Association of Schools and Colleges of Optometry. Advertising rates are available upon request.



#### **Practice Manual Cost**

Thank you for printing the book review of the COA Practice Reference Manual (Vol. 8, No. 4, p. 27). Unfortunately, by listing only the \$85 price, you may have discouraged many readers from adding this to their reference collections. The correct price structure is:

Students: \$23.00 AOA members: \$35.00 All others: \$85.00 As you can see, this is a substantial difference! Hope you can fit this correction in a subsequent issue.

Sincerely, Andee Zetterbaum Co-editor California Optometric Association

#### **Trustee Selection**

William K. Selden's editorial on "The Role & Responsibilities of a Trustee" (Spring '83 issue) is excellent and should be required reading for each public that the institution serves: students (and their parents), faculty, alumni, staff and administration, as well as the trustees.

Having been associated with three of the five independent colleges of optometry, I have seen all too well what a 19th century board can do to a 20th century institution. Trustee selection must continue to improve as they are the top of the corporate pyramid. Administrations must be careful to balance out optometrists with non-O.D.'s, keeping one eye on what skills and services the person can bring with them to the institution without jeopardizing the 501(c)(3) tax status (conflict of interest).

As Dr. Alden N. Haffner said at the American Academy of Optometry meeting in 1980—optometry has one college with fifteen campuses and is only as strong as its weakest link. The ultimate strength of a "campus" is the responsibility and outcome of its board. Thus, perhaps soon, as boards adopt a 21st century competency, we can all look for a strong college of American optometry.

Respectfully, Jonathan Goldman, O.D., M.B.A. San Francisco, CA

#### International Library, Archives & Museum of Optometry

rikijonnaum io Cierali (21949/9/1

Created in 1902 to serve AOA members, the library has gradually extended its services to government agencies, other professions, organizations, and to the public.

Optometrists should be aware of the vast resources available through the library to help in practice management, vision research, clinical decision making and continuing education. Books and Package Libraries (copies of articles on a particular subject) are sent on one month loan. Films, slides and audiocassettes can be reserved for home study or for use on a particular date. Photocopies can be supplied at 100 per page. (10 pages free to AOA members) in addition to several thousand books and over 700 issurnal titles in our collection, we have extensive subject files and the Archives to support research. A list of our package libraries and audiovisuals is available on request.

A telephone answering system permits access to the library 24 hours a day, including weekends and holidays. Users may call at their convenience, perhaps taking advantage of reduced telephone rates.

> 243 North Lindbergh Boulevard St. Louis, Missourt 63141 (314) 991-0324/991-4100

## Call for Papers 3rd Symposium on Presbyopia France, April 1985

Scientific Committee—President: Pr. Dubbis Poulsert (France): Pr. Alffert (France): Mr. J.P. Borinac (France): Pr. I. Borish (U.S.A.): Mr. C. Darras (France): Pr. E. Hartmann (Germany): Pr. Hokwin (Germany): Pr. G. Lambert (France): Pr. D. Miller (U.S.A.): Pr. L. Stark (U.S.A.): Pr. R. Wenle (Grande Bretagne).

Papers (15) minute durations related to one of the following topics:

Topic 1: Prespyopia: Direct and Indirect Mechanisms, and its Developmental Course.

Topic 2: Anthropology and Biometry of Presbyopia

**Topic 3:** Current and Especially New Methods for Screening, Preventing or Correcting Prestroopia

Official languages will be English. German and French.

Persons interested in attending this conference should submit a 200 word abstract of proposed contributions. It will be helpful also if a list of previous publications were included in the abstract. This material, as well as requests for additional information, should be sent by December 31, 1983 to the secretary of the Scientific Committee.

Dr. W. Lenne-Mr. J. Mur Essilor International 1, Rue Thomas Edison-Echat 902 94028 Creteil Cedex FRANCE

## **On Solid Footing**

The Journal of Optometric Education (JOEI continues to grow and improve each year. I am pleased to say that JOE is truly becoming the forum for educational topics and concerns in optometric education. The quantity and quality of manuscripts have continued to improve over the past year. The four issues published during the 1982-83 year contained fifteen original papers and two summary reports. The latter are the Association of Schools and Colleges of Optometry (ASCO) armual report and the Council on Optometric Education (COE) aircual survey. In this manner these reports are disseminated to a larger segment of the optometric community, other health professions and governmental agencies.

The number of accepted manuscripts continues to provide a nine to twelve month backlog from date of acceptance to publication. The editorial staff considers this a reasonable length of time in light of the fact that the Journal is published on a quarterly basis. It is editorial policy not to let this delay extend beyond the twelve month period in order to facilitate the publication of papers on current subjects. We continue to encourage authors to submit manuscripts of an educational nature to the Journal The Editorial Review Board continues to do an outstanding job reviewing and refereeing submitted manuscripts. The dedication of this group ensures that JOE will continue to publish high quality as well as timely papers.

The excellence of quality of the papers which have appeared in the Journal have been recognized in the past. This year has been no exception. The Journal was cited by the Optometric Editors Association in its annual journalism awards selection for several excellent editorials.

During the past five years the Journal has not experienced any significant increase in production costs. However, during the past year changes in production have resulted in a major increase in printing costs. This increase has been projected in the Journal's budget for the upcoming year. Of course, every effort will be made to keep additional production costs at a minimum. Although there was no increase in the Journal's subscription rate during the past year such an increase may be necessary in the near future in order to offset continuing increases in production and mailing costs.

In the future the Journal is interested in increasing student interest and communication in the Journal by addressing the perceived needs of the students through invited papers. As the association expands its Sustaining Member Section we will extend an invitation to these groups to contribute papers of an educational nature to the Journal.

An effort to increase advertising for the Journal has been made since the inception of the Journal. This need has become even greater as the costs of publication and

distribution have increased. During the past year an expanded mailing list of potential advertisers was developed and placed on the word processor. In addition, advertising packets were updated and these, along with past issues of the Journal, were distributed to advertisers, potential advertisers and advertising agencies. Although efforts to obtain more advertising have increased, the market has become more competitive, especially for journals with such specific content. Nevertheless during the past year the Journal has for the first time been successful in meeting the projected advertising revenue. Of course, continued efforts will be made in the year to come to inform potential advertisers about the benefit of advertising in the official association publication.

One of the ways in which readers and authors from other professions discover a journal, particularly a relatively new yournal is through its mention in the reference is not papers, and its appearance in objic: graphic retrieval services. The largest and best known service in the American health care professions is Index Medicus, Index Medicus is the Unlingraphic retrieval seruice of the National Library of Medicine. It provides such information as authoris), title, volume number, journal tille mae numbers, etc. of nancts published in many American as well as foreign health care journals. In spite of two attempts by the Journal to be selected for inclusion in the *index Medicus* data have we have thus far been unsuccession. This in no way reflects on the quality of the downal since the number of journals applying for inclusion far outstrips the present capacity of the service to rateren angelingen in range Arani arani di Arani di Sanga pasarahan

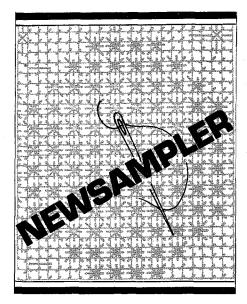
Such an attempt at including JOE in the Index Medicus data base will be made again in the year to come. The editorial staff and others involved in the Journal feel this is a most worthwhile effort in our attempt to inform others about the high quality of optometric education.

It is noteworthy, however, that JOE is indexed and annotated by the Educational Resources Information Center (ERIC) and cited in their monthly bibliographic journal, Current Index to Journals in Education (CIJE), and the Statistical Reference Index of the Congressional Information Service. The Journal is also available on microfilm from University Microfilms International.

Finally, communication from our readership, authors, as well as others both within and without the profession has indicated a continued high level of interest in the Journal. For this we are most appreciative and encourage such future communication to assist the editorial staff in continuing to publish a quality journal.

John F. Amos, O.D.
Chairman, Editorial Council.

Cale of Anna



#### Irvin Borish Receives SCCO Honorary Degree

Irvin M. Borish, O.D., D.O.S., LL.D., D.Sc., received the honorary degree, Doctor of Ocular Science from the Southern California College of Optometry (SCCO), at the college's 79th annual commencement exercises June 12. Ceremonies were held at 10:30 a.m. at SCCO's Ernest A. Hutchinson Memorial Amphitheater, located on the Fullerton campus.

Dr. Borish delivered the commencement address, "A Perspective for the Future," to 88 recipients of the Doctor of Optometry degree and 62 recipients of the Bachelor of Science in Visual Science degree. In addition, 12 students in the college's Optometric Technician program received their Associate in Arts degree and 10 individuals from the same program received the Certificate of Completion.

Chairman of the SCCO Board of Trustees Gordon C. Young, Col., AUS (Ret.), stated during the conferment of the honorary degree, "The Board of Trustees of the Southern California College of Optometry, now in its 79th year, on rather rare occasion confers an honorary degree because of significant achievement or outstanding and meritorious service to the public and/or the profession.

"Irvin M. Borish is such a person," Col. Young stated. "Dr. Borish has distinguished himself for excellence of service and for his notable leadership in the advancement of the profession of optometry and the visual welfare of the public."

"Dr. Borish, a graduate of the Illinois College of Optometry (ICO), is now in his 50th year of optometry," stated SCCO President Richard L. Hopping,

Dr. Borish served on the ICO faculty for 10 years, assuming the positions of director of clinics, registrar and assistant dean. For 30 years he practiced optometry in Kokomo, Indiana. He was a member of the initial committee which founded the School of Optometry at Indiana University and served as a visiting faculty member and part-time professor.

Dr. Borish is a full-time professor of optometry, and has been serving as director of the Division of Patient Care and teaching in the areas of Clinical Procedures and Contact Lenses at Indiana University.

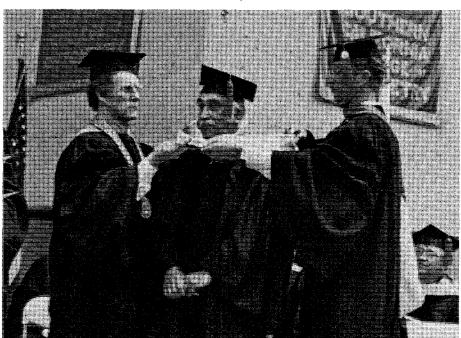
### ICO Receives Five-Year Accreditation

The Council on Optometric Education recently granted the Illinois College of Optometry full accreditation for five years, President Boyd B. Banwell, O.D., reported.

The evaluation team complimented members of the Board of Trustees for loyalty and dedication and Dean John Cromer, Ph.D., for enhancing the academic program and initiating faculty involvement in its development and management.

They noted a different administrative style and philosophy on the part of the executive and administrative officials of the college, as well as genuine concern and commitment to teaching on the part of the faculty, evidenced by an increased output of publications, research activity and participation in off-campus professional and educational activities.

The team also cited improvements in curriculum, student attitudes and student services, physical facilities, alumni activities and continuing education. Many changes in ICO's general clinic also impressed the COE team, including an expanded clinical curriculum, reduced numbers of no-show patients, an enlarged Low Vision Clinic, improved communication with ICO affiliated clinics, remodeling of the Vision Therapy and Strabismus/Amblyopia clinics, and



Dr. Irvin M. Borish (center) is hooded during conferment of the Honorary Degree, Doctor of Ocular Science, to him at the 79th annual commencement exercise of the Southern California College of Optometry. Participating in the hooding ceremony are (l-r), SCCO President Richard L. Hopping, O.D., and President of the Faculty Council, James E. Bailey, M.Opt., Ph.D.

the planned renovation of other specialty clinics.

#### SUNY Sponsors Practice Enhancement Alternatives Seminar

More than 50 practicing optometrists and their spouses from New York State participated in an innovative weekend seminar at the State College of Optometry recently which examined various practice enhancement alternatives for the optometrist over 50.

Co-sponsored by the college and the New York State Optometric Association, the seminar explored associateships, partnerships, mergers and retirement with a panel of professional, legal, financial and estate planning experts.

According to Stanley Eisenberg, O.D., director of professional career guidance at the New York College, nearly half of all optometrists in New York State will be of retirement age in 1990. The need, then, for this type of practical seminar was clear.

Modeled after the successful program at the University of Alabama's School of Optometry last year, the New York seminar examined the advantages as well as the pitfalls of various retirement and practice enhancement options.

#### Pacific Establishes New Master's Degree Program

Pacific University, Forest Grove, Oregon, has announced a new degree program, Master of Education, Visual Function in Learning.

The program is housed in the College of Arts and Sciences but was developed in conjunction with the College of Optometry and is intended for optometrists who wish to extend their knowledge of the learning process with an emphasis on reading remediation.

"I am particularly proud that this master's program ties together our two colleges at Pacific in an exciting way," declared Pacific President Robert F. Duvall. "On no other campus in the nation do we have the combination of knowledge, skill and interest in children with visual handicaps to mount such a program."

The Pacific M.Ed. Visual Function in

Learning program is expected to have four to six students enrolled during the coming year and will grow to approximately 20 students by 1990.

#### Ford Highlights Banwell Inaugural

The Honorable Gerald R. Ford, former President of the United States, highlighted ICO's inaugural weekend, May 14-15, as the keynote speaker at the installation of Boyd B. Banwell, O.D., D.O.S., as ICO's third president.

Former President Ford commended the college on its outstanding academic program, its professional leadership and its long tradition of growth and excellence.

Ford also said his perception of optometry as a profession changed dramatically after James Ford, his youngest brother, graduated from Northern Illinois College of Optometry and built a successful private practice in Grand Rapids. "I am pleased optometry now is recognized as a vital health profession," Ford said.

Citing health care costs, increasing at twice the rate of inflation, Ford said the impact has been devastating on the federal budget, health insurance and on the American public. "There is no quick fix—all of us have a responsibility to this."

He suggested four steps to help stabilize health care costs:

- greater emphasis on preventive medicine
- greater use of outpatient capabilities
- better and less costly use of health facilities; i.e., reduced use of acute care facilities when unnecessary
- some sort of government-initiated cost control program run by the health care industry

Ford also urged students and practitioners to exercise their constitutionally-ordained responsibility to contact their congressmen regarding issues pertinent to optometry.

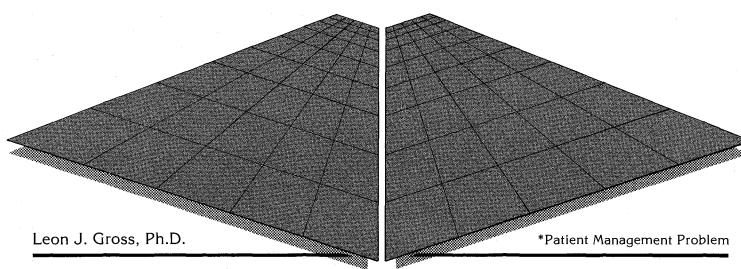
(continued on page 27)



Mr. Arthur Stern, President of Glasflex Corporation, presents grant monies for a clinical research study to Dr. Charles F. Mullen, executive director of The Eye Institute of the Pennsylvania College of Optometry. The study, to be conducted by Dr. Michael R. Spinell, consultant in specialty contact lenses, will test the use of a new Glasflex polymer for gas-permeable contact lenses. From left are Mr. Stern; Dr. Mullen; Dr. Joel A. Silbert, chief of contact lens services at The Eye Institute; and Dr. Herbert L. Moss, consultant in specialty contact lenses.

## THE STANDARDIZED 2-DIMENSIONAL PMP:\*

A New Assessment Technique in Optometric Credentialing and Education



he assessment of the clinical problem solving skills of students in the health care professions has long been a concern of credentialing boards and clinical faculty. It has also been a relatively difficult type of assessment to conduct in a reliable and valid manner. During the December 1980 meeting of the American Academy of Optometry, the National Board of Examiners in Optometry presented a symposium dealing with the measurement of optometric clinical competence, which was subsequently published in the Journal of Optometric Education. The symposium offered several perspectives in assessing clinical competence, including a discussion of written clinical simulation exercises (also known as patient management problems or PMPs) which pointed out its recent history, compelling face validity, several problems that had emerged in the empirical literature, and refinements that were necessary in order to overcome these problems.1

Leon J. Gross, Ph.D., is director, Examination Services, for the National Board of Examiners in Optometry, Washington, D.C.

After this symposium was presented, the National Board launched a major research and development effort to prepare for a new examination part based on written simulations that will measure clinical judgment in a more effective way than it is measured by the current Part IIB. The result of this project has been the creation of a new, innovative type of PMP that the National Board anticipates being useful not only in its own credentialing program, but for use in optometric education as well as for credentialing and educational programs in other health care professions. The purpose of this article is to describe the nature of this new PMP within the framework of previous empirical findings.

The recent accumulation of empirical research on PMPs has shown both encouraging and discouraging results. On the positive side, Palva and Korhonen<sup>2</sup> found that the mortality rate resulting from a specific drug-induced condition was identical for actual clinical performance and corresponding PMPs. Second, factor analytic studies have shown that clinical problem solving can be

broken down into two major components: data gathering and diagnosis/ management.3,4 Third, it has been shown that performance on PMPs tends to have low to modest correlations with multiple choice tests, which has led to the conclusion that PMPs are therefore measuring a cognitive skill that multiple choice tests do not measure. 5,6 Thus, it is imperative for a well-rounded assessment program to utilize PMPs as well as multiple choice tests. Confounding these results, however, are data which show that PMPs also have low correlations between each other, indicating that PMPs have not been measuring a general problem solving skill or style. and that PMP performance has been situation or problem specific. 7,8 In contrast, it has been argued that PMPs are not necessarily problem specific, but have been giving the appearance of being content dependent because of artifacts in existing scoring algorithms.9 It may well be that additional artifacts result from the acknowledged difficulty and effort required for preparing PMPs, 10 and the accompanying lack of a standardized format. The fact that

there is a wide diversity of scoring procedures currently being used for PMPs<sup>11</sup> suggests that psychometricians have had an underlying discomfort with the scoring procedures that were used by early developers, and have attempted to create methodological refinements.

A further problem with the PMP model as it currently has been used is that examinees need not respond to each option. For example, in the typical simulated patient examination, examinees are directed to omit responses that represent procedures that they would not perform on that patient. This presents a scoring dilemma for the incisive examinee who quickly sees the patient's problem and makes a quick but accurate diagnosis. Although the examinee is an excellent problem solver and diagnostician, by omitting responses that (s)he did not need to confirm the diagnosis but which could have been helpful if (s)he were less insightful, (s) he relinquishes the opportunity to gain points, thus achieving a lower score for the problem than an examinee who is more methodical (or perhaps "plodding") but less insightful. As this traditional PMP tends to reward thoroughness more than incisiveness, a scoring artifact is introduced which jeopardizes the validity of the PMP; its potential for affecting the scoring process was shown and discussed by Rimoldi<sup>12</sup> in the early studies of this technique. In a later investigation of this phenomenon, it was found that while fourth-year medical students performed better than third-year medical students, as one would expect, the fourth-year medical students also performed better than experienced practitioners, 13 a finding which was neither anticipated nor intuitively pleasing. A more recent study<sup>14</sup> found that PMPs did not statistically distinguish between the performance of third- and fourth-year medical students when real differences in problem solving sophistication were believed to exist. These two studies illustrate the aforementioned scoring artifact which inadvertently penalizes problem solving incisiveness. In a related study among pharmacists, Page and Fielding<sup>15</sup> found that PMPs were good predictors of what pharmacists did not do in practice, but were poor predictors of what they did do. The PMP reward system appears to be responsible for this loss of validity. Similarly, Goran, Williamson, and Gonnella<sup>16</sup> found that the PMP performance of experienced physicians was uniformly elevated such that PMP scores could not distinguish between poor, average, and excellent clinicians. The authors attributed this phenomenon to cuing, which has been a concern of other researchers as well. 14,17,18

The artifacts and dilemmas that have been discussed in this article have, for the most part, been identified in the literature only recently. In reviewing these studies, one can sense a pervasive disappointment in that although the PMP technique appears to be valid and necessary for measuring clinical problem solving skills, the empirical results have been discouraging. If this technique is to be shown to be valid, and not merely seductive, more adequate test development and scoring techniques are necessary.

In preparing for the development and administration of PMPs on the new Part III examination of the National Board, it became evident that the aforementioned problems would be particularly troublesome with respect to distinguishing between examinees who are effective problem solvers and those who are ineffective. Since most optometric examination procedures for most patients involve little if any laboratory analysis costs, and are basically non-invasive. there would be little scoring penalty or risk in an examinee indicating that he would perform virtually every examination procedure for a typical simulated patient. This probable strategy would result in little score variance between examinees with good and those with poor clinical judgment, thus obscuring important differences in problem solving acumen. After having developed several optometric PMPs during the fall of 1981 using the traditional model, the National Board's concern regarding poor psychometric characteristics was reinforced. This prompted a substantial amount of thought and reconsideration, which resulted in a new approach to PMP structure, development, and scor-

The type of PMP which evolved from this analysis is standardized, linear, and 2-dimensional. As in the traditional PMP, the examinees must indicate which patient data are desirable, and which data are undesirable (first dimension). However, the examinees must also indicate why the data are (un)desirable (second dimension). The second dimension is the major distinguishing characteristic of this PMP model. The

2-dimensional PMP will begin with an opening scene which will contain the patient's chief complaint, or the reason for his or her visit (e.g., visually related physical discomfort, new spectacle or contact lenses, annual examination, etc.), and will contain relevant demographic information about the patient such as age, sex, and race. As soon as the examinee "digests" the opening scene (s) he proceeds to the next portion of the PMP, which contains a relatively exhaustive list of primary examination procedures. Within this problem section, examinees will be directed to respond to each option (i.e., examination procedure) not only with regard to whether or not they would perform the procedure, but also with regard to the reason why they would or would not perform it. A 3-5 option rating scale will be provided for these responses. Thus, for example, the assessment of a patient's intraocular pressures (IOPs) could be selected because it is essential or important to the problem evaluation and diagnosis, or it could be selected because despite being perceived as unimportant to the problem evaluation, it would be necessary to be assessed in order to monitor the patient's ocular health and visual functions. In contrast, the examinee could indicate that (s) he would not perform this procedure because it is either unnecessary to monitor the patient's ocular health and visual function at that point in time, or because it is contra-indicated or not feasible at that "visit" because of the nature of the patient's problem. Regardless of the reason why the examinee would perform the procedure, latent image markers\* will provide feedback; no feedback will be provided if the examinee chooses not to perform the procedure. Scoring will be done using differential weights as a function of the keyed response. For example, in a glaucomatous patient, intraocular pressures would be essential to patient evaluation and diagnosis. Measuring IOPs for this

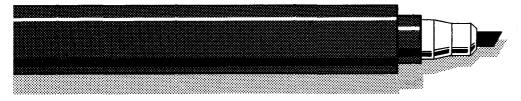
<sup>\*</sup>Latent image markers are chemically treated feltip pens that "develop" or make visible information that is printed in invisible ink. The invisible text contains the results of consequences of a particular clinical procedure or decision. Thus, an examinee wishing to measure IOPs would do so by developing the appropriate box, which would reveal the patient's IOPs. The examinee's interpretation of the obtained IOP levels would influence his or her subsequent actions and decisions in managing the patient.

reason is the correct response and would receive the maximum number of points. The examinee who indicates that IOPs are unimportant to the problem evaluation but nonetheless measures them to monitor ocular health and visual function, would receive partial credit, while the examinee who does not measure IOPs would receive no credit. In contrast, the keyed response for IOP would be different for a 12-year-old patient whose ocular history is unremarkable and who has "presented" for a routine visual examination.

Examinees will be encouraged to proceed through the primary examination procedure section in whatever order they feel is most appropriate, which presumably would be the order in which they would examine this particular patient in a real office setting. Upon conclusion of the primary examination procedure section, and having formed a tentative diagnosis, examinees will proceed to an exhaustive listing of secondary examination procedures. In this section, they will further examine the patient to confirm or rule out the possibility of an aberrant condition in disease, binocularity or perception, or refraction.

One of the subtleties that will distinguish this PMP from other student evaluation tests is that the emphasis is placed on what the examinee wants to learn about the patient, rather than how (s) he will proceed to obtain those data. Thus, for example, the examinee will not be deciding whether or not to perform keratometry, but rather whether or not to measure the patient's corneal curvatures. Similarly, (s) he will not be deciding whether or not to perform tonometry, but rather, whether or not to estimate the patient's intraocular pressures.

This new PMP format has been referred to as standardized. It is considered standardized in the sense that the "visible" portion of the problem (i.e., the options and rating scales) will be identical for all PMPs. The variable and "secure" portion of the PMPs will be the actual patient who is being managed, and the corresponding results of the examination procedures which the examinees will develop using latent image markers. Because the structure of the PMP is not a secure instrument, academic institutions will be allowed and encouraged to utilize the model within their own curricula. The adaptation of



After responding to each of these options with the same rating scale as mentioned previously, the examinees will record the diagnoses by selecting as many as five or six conditions from a relatively exhaustive listing of conditions (e.g., a reduced version of the listing found in Current Optometric Information and Technology or COIT). A similar relative exhaustive listing of management procedures will be provided for the examinee to indicate how (s)he would treat the patient. In short, the overall format the standardized 2-dimensional PMP is designed to measure how the examinee utilizes his or her resources and patient data base, rather than the amount of data that (s) he tends to collect, knowing that (s) he has little to lose by being a compulsive, inefficient data collector. It is also anticipated that the exhaustive response lists will eliminate the potential of cuing that was discussed earlier.

this technique for teaching/learning purposes is expected to be easy. Furthermore, it is anticipated that the National Board will publish the complete format of the PMP in either the Candidate's Guide or a separate brochure which would be routinely available.

The standardized 2-dimensional PMP is still in its infancy, and a substantial amount of pilot testing is currently being planned. However, there are seven individuals who have already made a significant contribution to its development: Drs. Felix Barker, Linda Casser, and Jeffrey Nyman of PCO, and Drs. Irwin Suchoff, Rochelle Mozlin, Leonard Press, and Leonard Werner of SUNY. These faculty members have devoted a significant amount of personal and professional time as a working group in critiquing, refining, and developing both the model and several prototypes. Their individual and collective insight has been extremely valuable.  $\square$ 

#### References

- Gross LJ: Psychometric advances in measuring clinical problem-solving skills. J Optom Educ 1981; 7:15-18.
- Palva IP, Korhonen V: Validity and use of written simulation tests of clinical performance. J Med Educ 1976; 51: 657-661.
- Donnelly MB, Gallagher RE, Hess JW, Hogan MJ: The dimensionality of measures derived from complex clinical simulations. Proceedings of the Thirteenth Annual Conference on Research in Medical Education. Chicago, November 1974.
- Juul DH, Noe MJ, Nerenberg RL: A factor analytic study of branching patient management problems. Paper presented at the annual meeting of the National Council on Measurement in Education. New York City, April 1977.
- 5. Hubbard JP: Measuring Medical Education. Philadelphia, Lea & Febiger, 1971.
- McGuire CH, Babbott D: Simulation technique in the measurement of problemsolving skills. J Educ Measure 1967; 4: 1-10.
- Elstein AS, Shulman LA, Sprafka SA: Medical Problem Solving. Cambridge, MA, Howard University Press, 1978.
- Skakun EN: The dimensionality of linear patient management problems. Proceedings of the Seventeenth Annual Conference on Research in Medical Education. New Orleans, October 1978.
- Norman GR: Medical problem solving and the illusion of content specificity. Paper presented at the annual meeting of the Association of American Medical Colleges. Washington, November 1981.
- Fleisher DS, Schwenker J, Donnelly M: Isomorphic patient management problems: a counterpart to parallel multiple choice tests.
   Proceedings of the Twenty-First Annual Conference on Research in Medical Education. Washington, November 1982.
- Bligh TJ: Written simulation scoring: a comparison of nine systems. Paper presented at the annual meeting of the American Educational Research Association. Boston, April 1980.
- Rimoldi HJA: The test of diagnostic skills. J Med Educ 1961; 36:73-79.
- Martin IC: Empirical examination of the sequential management problem for measuring clinical competence. Proceedings of the Fourteenth Annual Conference on Research in Medical Education. Washington, November 1975.
- Feinstein E, Gustavson LP, Levine HG: Measuring the instructional validity of clinical simulation problems. Eval Health Prof 1983; 6:61-76.
- Page GG, Fielding DW: Performance on PMPs and performance in practice: are they related? J Med Educ 1980; 55:529-537.
- Goran MJ, Williamson JW, Gonnella JS: The validity of patient management problems. J Med Educ 1973; 48:171-177.
- Blumberg P: Clinical evaluation: issues of examination format. Eval Health Prof 1981; 4:316-329.
- McCarthy WH: An assessment of the influence of cuing items in objective examinations. J Med Educ 1966; 41:263-266.

### NEFREDORT

#### Volume on Eye Disease Epidemiology Available

Newly published information on eye disease epidemiology is available from the National Eye Institute INER included are papers on the following eye disorders senile macular degeneration, ambly opia, open angle glaucoma, cataract, cliatetic retinopathy, and ocular melanoma.

The information was presented in June, 1982, at an NEI Symposium on Eye Disease Epidemiology, after which thinsen papers were selected for publication in the August, 1983, issue of the American Journal of Epidemiology. One or more copies of this issue of the AdE are available upon request from the NEI Contact: Richard L. Mowery. DPH. Office of Biometry and Epidemiology, National Eye institute, Building 31, Room 6A24, Bethesda MD 20205

#### Barbara Underwood Joins National Eye Institute

Barbara Underwood, Ph.D. has been named special assistant to the director of the National Eye institute (NEI). Her primary focus of interest will be research on nutritional eye disease, the major cause of childhood bilindness in developing countries.

Dr. Uniterwood, who has been an associate professor of nutrition at Massachusetts Institute of Technology (MIT), will be the scientific lation for all NEI nutrition research and will also serve as project officer for the National Eye Institute at the Blindness Clinical Research Center in Hyderabad, holis.

In addition to coordinating NEI nutrition programs, she will conduct her own research both at the NEI and at the Hyderahad center on the role of vitamin A deliciency

in mutitional blindness and severe visual impairment.

A native of Santa Ana, California, Dr. Underworki received her Ph.D. in nutritional biochemistry from Columbia University in 1962. She was a teacher and restarcher at the University of Maryland School of Medicine, Columbia University and Pennsylvania State University before joining the faculty of MIT in 1977. She aiso has had extensive experience as a mutrition consultant in Southeast Asia and has published over fifty articles on nutrition, ultamin A deficiency diseases, and international efforts for nutritional intervention.

#### National Eye Institute to Hold Seminar for Grants Administrators

Grants administrators from university departments of opitical mology, schools of optometry, and central administrative offices of other National Eye Institute (NED grantee institutions have been invited to attend an annual seminar on grants management September 12 and 13, 1983, at the National Institutes of Health (NIH), Bethesda Maryland.

Cryanized by Anna Marie Pertell. Chief of the Extramural Services Branch, NEI, this year's seminar will explore many of the continuing problems facing vision research grants administrators to-day. It will consist of a series of workshops on topics such as grant application preparation and justification and post-award administration. NEI extramural staff members will explain how decisions are made during the various phases of the poer review and award process.

Together, NEI grants management specialists, health scientist administrators and seminar participants will review NIH and NEI guidelines pertaining to the other dees work at their own institutions. According to De Ronald Cseller associate directors for extramural and collaborative programs. NEI. The seminar is a part of our ongoing effort to toster more effective local management of grants by developing a strong communications network between the administrators and NEI extramural static

mural stall.

Grants administrators wishing to attend the seminar should sente Ms. Anna Marie Perreli Chief of Extramural Services Branch, National Eye Institute, Building 31 Room 6A52, National Institutes of Health. Bethesda, Maryland 20205, or telephone (301) 496-5884 for registration information.



dactora dur contrate deutoral casterese el Hearth el Rengise. Ares, esce

Report of the President A brainstorming session at the 1980 Annual Meeting collectively identified 35 problem areas that might be appropriate for ASCO to undertake. These were later ranked by the Board of Directors identifying that our top priority concerns dealt with the projected shortfall of student applicants and funding support for optometric education. Receiving near-the-top priority ratings were the concerns for shortage of personnel resources for faculty and administrators in optometric education and the lack of adequate management data relative to optometric education. Also, in our priority concerns was the general lack of knowledge among the public, federal and state governments, and higher education in general with respect to the nature and demands of optometric education. From the sponsorship of recruiting/marketing workshops, to a student financial aid survey, development of a recruiting poster and an audio visual series on recruitment, and the creation of a student aid endowment fund, we indeed can salute the efforts of the Council on Student Affairs and others who are responsible for pushing toward the goal of producing an adequate supply of student applicants. It is a pleasure to report that there appears to be a turn in direction in the applicant pool such that the decline is on the repair. While this area is deserving of further efforts, we can take pride in the accomplishments thus far and the change in direction with respect to the applicant Through the efforts of the Council on Academic Affairs we have held successful faculty development workshops and established an inventory process for forecasting personnel needs for schools and colleges of optometry. Closure pool. is expected in addition on a resource list of institutions whose programs are particularly well designed for the educa-A pilot project on clinical management is well on its way under the Council on Institutional Affairs and now allows tion and training of optometric faculty. us to take the second step and implement standard clinic management data programs throughout optometric educa-Two of our goals—the development of a funding support for optometric education and development of a means to educate higher education, federal and state governments, other professions and the public about the general nature of optometric education—still remain to be developed and continue to be areas of concern. Hopefully the succeeding administration will be able to give these goals the attention they deserve. We can be proud for the activities in regard to our study of optometry graduates under a federally funded contract. We also are pleased at the progress of our Sustaining Member Section in adding a more stable financial base to our entire program activities. We continue to push, however, for a sponsor to the Long Range Study of op-The common core curriculum study, which now has roughly half of the schools in the nation completed, promises tometry. This, thus far, has been a discouraging search. to be the most thorough and detailed study of the curriculum within any health professions education. It indeed will be a useful document for the member schools as well as optometry programs in the foreign nations, and, of course, Indeed, the coordination between ASCO and the American Optometric Association, the Council on Optometric the National Board Examination. Education, and the National Board of Examiners in Optometry this year has been at an all-time high. We applaud I retire from this position knowing that some worthwhile things were accomplished, that not all that we desired those who have made these coordinated efforts possible. was accomplished but that a good team effort prevailed throughout these past two years. For this, I am most appreciative. Willard B. Bleything, O.D., President

#### **National Activities**

The Association of Schools and Colleges of Optometry (ASCO) has had a very active and productive year during 1983. Representing optometric education to the public and the health community, ASCO has continued to monitor national and legislative affairs, provide counsel and comment to Congress and the federal agencies, serve as a central repository of information for optometric education, and conduct projects to further the priorities and purposes of the association.

## Health Award and Study of Graduates

In the fall of 1983, ASCO cooperated with the Department of Health and Human Services (HHS) in coordinating and selecting entries for the first annual "Secretary's Award for Innovations in Health Promotion and Disease Prevention." The award, announced in May, 1982, by HHS Secretary Richard S. Schweiker, will provide annual cash prizes to the best papers by graduate and undergraduate students in the health fields. The competition was designed to encourage new ideas in health promotion and disease prevention. ASCO received three papers and submitted two in the semi-final competition; neither of these, however, were among the 17 selected for final consideration by HHS.

The first phase of ASCO's contract

to study recent graduates of optometry schools was completed. This included development and submission of a data tape to the Health Resources Administration and completion of an interim final report. ASCO also was awarded an extension of the contract to conduct an analysis of the data which will extend over an additional six-month period. During the analysis, particular reference will be given to the following questions: (1) the extent to which state licensure procedures impact upon the entry of optometry graduates into active practice; (2) factors that have an impact on the development of a practice; and (3) a description of the practice location and practice characteristics of recent graduates.

## Student Aid, Interchange with Industry

Nearly \$11,000 in student aid monies were distributed for the first time through the ASCO Student Endowment Fund. This fund was established in 1981 as the result of a gift to the association. Earnings on the capital invested fund will be distributed on an annual basis to assist students in financing their educations. This year, each school received the equivalent of \$2.32 per student for a total distribution of \$10.972.

A considerable amount of effort

Institutional representatives attending the 1983 ASCO Annual Meeting heard a variety of reports and discussions concerning ASCO projects and programs.

was expended in getting ASCO's Sustaining Member Section underway. Various ophthalmic companies were contacted in multiple followups. To date, six companies have joined the section. It is hoped that the section will enhance exposure and communication between optometry related industry and the member institutions of ASCO. New technology information, product development and research, contact to senior students and recent graduates, educational interchange and faculty development, graduate placement assistance, and data base development are some of the beginning priorities that have been identified for the section.

After numerous unsuccessful attempts to solicit funding support for the joint AOA/ASCO proposed long-range study of optometry and optometric education, an alternative approach was suggested at the December meeting of the committee. ASCO is now working with the AOA to develop a revised proposal at a lower cost. When this is completed, renewed efforts with the American Council on Education will be made to obtain the necessary funding of the study.

#### **Educational Symposium**

ASCO conducted an educational symposium/luncheon during its 1982 annual meeting in Boston which was well received. Distinguished speakers from health center programs at three major universities discussed the topic, "The Academic Health Center Concept." Proceedings of the symposium were published during the year and a similar program is planned for the 1983 annual meeting dealing with residency programs.

The association participated in the dedication ceremonies of the new School of Optometry at Inter American University of Puerto Rico during its quarterly board meeting in October, 1982; and visited the School of Optometry at the University of Montreal in Quebec, Canada, for its March, 1983, board meeting.

#### **Council Activities**

Significant ongoing and new activities were undertaken by ASCO's three standing councils during the year.

#### Council on Academic Affairs

A Residency/Graduate Programs Directory was published by the Council on Academic Affairs. The directory describes in detail 36 current programs being conducted by the schools and colleges. The Council also proceeded with its computer analysis of curriculums at the various schools and colleges to assist in developing topical outlines for the National Board examination.

An additional activity undertaken by the Council on Academic Affairs was an assessment of present and future development programs for faculty and administrators within the institutions. A questionnaire was developed to determine the areas in which development programs are desired and was distributed to all of the schools. A final report on the survey is expected at the 1983 annual meeting.

The Council also began a survey of current and future personnel needs in optometric education. It is hoped that an analysis of the data received from this survey will ascertain an overall projected personnel need for optometric education and will provide assistance in future planning.

An update of the Handbook for Teachers in Schools and Colleges of Optometry also is being conducted by the Council on Academic Affairs, as well as assistance in a study of two sections of the National Board examination concerning theoretical optics and pharmacology.

1981-83 ASCO officers (l-r) Dr. Alfred A. Rosenbloom, Jr., Dr. Edward R. Johnston, Dr. Richard L. Hopping, and Dr. Willard B. Bleything, headed this year's annual meeting at the Sheraton Washington Hotel in Washington, D.C.

## Council on Institutional Affairs

ASCO's Council on Institutional Affairs proceeded with its priority project of establishing a clinical data base for optometric education during the year. Four schools began participating in a pilot study of the data collection: Pennsylvania College of Optometry, Southern California College of Optometry, the University of Alabama in Birmingham School of Optometry, and the State University of New York, State College of Optometry. The Indian Health Service also has requested to be included in the project; however, no decision regarding this has been reached at this point.

The Council on Institutional Affairs also considered a proposal from the American Optometric Student Association (AOSA) to initiate an interschool student clinical exchange program. While ASCO supported the concept of the program and urged those institutions who could participate to do so, it recognized that unique circumstances may preclude some institutions from participating.

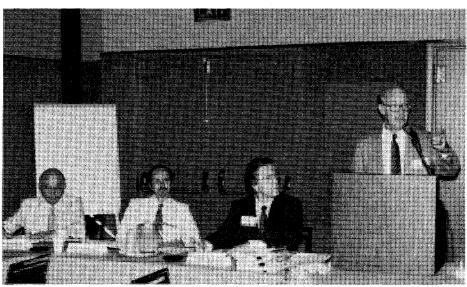
#### **Council on Student Affairs**

The Council on Student Affairs (CSA) coordinated several major projects during the year. The CSA Task Force on Recruitment met with

the AOA National Student Recruitment Task Force in St. Louis in October and worked out cooperative arrangements for distribution, follow-up and evaluation of the present career information. Development of a national recruitment poster was completed and included in the annual mailing of OCAT materials to more than 2,000 national advisors in the health professions. Names of inquirers also are being compiled, catalogued and forwarded to the educational institutions for individual reply and follow-up. Plans for additional circulations of the poster and analysis of inquirer data are being developed.

Financial restraints forced reconsideration of how ASCO interacts with the Psychological Corporation's handling of the Optometry College Admissions Test (OCAT) during 1983. Beginning in 1983-84, monitoring of the OCAT will transfer from a committee function to a liaison function delegated to an experienced CSA representative.

How to improve the placement services at the various schools and colleges has been another major area of concern to the Council on Student Affairs. Dialogue between CSA representatives and AOSA delegates in Portland this year pointed up the wide disparity of services available at the various schools and the definite student demand for better coordina-



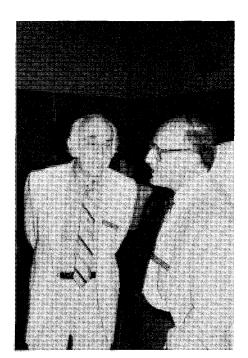
## Legislation and Appropriations

## Interprofessional Activities

tion of placement functioning on the school and national levels. A task force on placement is being organized by CSA to more effectively address the problem and coordinate the constituent groups concerned about a solution.

The Council on Student Affairs also assisted in coordinating plans for ASCO's co-hosting, along with the American Association of Colleges of Podiatric Medicine (AACPM), of the national convention of the National Association of Advisors to the Health Professions (NAAHP) to be held in Philadelphia in June, 1984. ASCO hopes to achieve maximum visibility for optometry with the health advisors at this meeting.

CSA representatives also met in conjunction with the 1983 AOSA convention in Portland, Oregon, in January, and optometry admissions officers met in Boston in April to share information about local school recruitment materials and programs, final planning and explanation of an Applicant Status Reporting Form, and future directions of the Task Force on Recruitment.



#### **Student Loan Program**

Directly, and in cooperation with the Federation of Associations of Schools of the Health Professions (FASHP), ASCO has commented on proposed new regulations for the Health Professions Student Loan Program. Negotiations have been particularly difficult in view of the Congressional interest and that of OMB in placing the responsibility for collecting or paying the loan on the schools even though the federal government played a significant role in the problem.

Formal comments submitted by ASCO and FASHP primarily have challenged the retroactive application of new regulations. Some compromise was achieved on the issues and the final regulations are in force. Monthly, and at one point, weekly sessions were held in addressing this problem area.

#### **National Health Budget**

Through membership in the Coalition for Health Funding (CHF) and FASHP, ASCO also has worked to influence changes in the federal health budget for the FY 82 supplemental and FY 83 budgets. Of particular interest to schools of optometry have been the following: (1) an increase in funding of health professions student loans to provide capitalization of this program at newer schools which do not yet have revolving funds; and (2) an increase in funding for special health professions initiatives to provide for funding of curriculum reviews, faculty development and other programs of special concern.

#### **Health Federation**

ASCO has participated in various monthly meetings with the Coalition for Health Funding and the Federation of Associations of Schools of the Health Professions over the past year. In addition, ASCO representatives have attended meetings of the National Health Council and the Association for Academic Health Centers.

A joint meeting with NBEO and the International Association of Boards of Examiners in Optometry (IAB) was held to develop a questionnaire on state licensure requirements and exam results. ASCO members also attended the American Academy of Optometry meeting in Philadelphia in December, 1982, combined with an ASCO executive committee meeting and a joint executive session with the AOA to discuss topics of mutual interest.

#### AOA Planning, International Optometric League

ASCO representatives also attended the Mid-Year Meeting of the AOA in San Diego in January, the AOSA Congress in Portland, and participated in the AOA Planning Session in St. Louis in March, 1983. A review session with the Psychological Corporation regarding administration and management of the OCAT exam was held in January, 1983, and the executive director represented ASCO at the annual meeting of the International Optometric and Optical League (IOOL) in Switzerland in May.

Dr. Irvin M. Borish (left), who attended this year's annual meeting of ASCO to propose support for a new Institute of Optometric Practice, chats with Dr. D. Leonard Werner, chairman of ASCO's Council on Institutional Affairs.

## New Appointments

## 1983 Annual Meeting

ASCO President Willard B. Bleything, O.D., M.S., dean of the College of Optometry at Pacific University, Forest Grove, Oregon, was appointed to a four-year term on the National Advisory Council on Health Professions Education of the Department of Health and Human Services. The 20-member Council advises the Secretary of HHS on policy matters in the administration of health professions programs and in the awarding of grants under the authorities.

Henry B. Peters, O.D., dean of the School of Optometry at the University of Alabama in Birmingham, received the first Thomas P. Carpenter Distinguished Service Award from the National Health Council at its annual membership meeting in March, 1983.

William Edgar Cochran, O.D., of Kosciusko, Mississippi, was appointed president-elect of Southern College of Optometry, Memphis, Tennessee, effective July 1, 1983, to replace Spurgeon Eure, O.D., who retires June 30, 1984. Finally, Boyd B. Banwell, O.D., D.O.S., was installed as the third president of the Illinois College of Optometry, May 15, 1983.





Dr. Willard B. Bleything Dr. Boyd B. Banwell



Dr. Henry B. Peters (center) receives the National Health Council's Thomas P. Carpenter Distinguished Service Award.

#### **Election of Officers**

At its annual meeting held at the Sheraton Washington hotel in Washington, D.C., June 24-26, the Association of Schools and Colleges of Optometry (ASCO) elected new officers for the ensuing two years. They are: president—Richard L. Hopping, O.D., president of the Southern California College of Optometry, Fullerton; presidentelect-Edward R. Johnston, O.D. M.P.H., president of the State College of Optometry, State University of New York; vice-president-Jack W. Bennett, O.D., dean of the College of Optometry at Ferris State College, Big Rapids, Michigan; and secretary-treasurer—F. Dow Smith, Ph.D., president of the New England College of Optometry, Boston.

Reappointed to the chair of the Council on Academic Affairs was Douglas H. Poorman, Ph.D., dean of academic affairs at the Southern California College of Optometry, and to the chair of the Council on Student Affairs was James F. Noe, M.A., director of admissions at the Ohio State University, College of Optometry. Appointed to the chair of the Council on Institutional Affairs was Larry R. Clausen, O.D., M.P.H., dean of academic affairs at the New England College of Optometry.

#### Symposium on Residencies

Some forty representatives of the eighteen member institutions of ASCO attended the annual meeting. A highlight of the session was a symposium entitled, "Residencies in the Health Professions," sponsored in part by the Sustaining Member Section of the association. The symposium was moderated by Alden N. Haffner, O.D., Ph.D., vice chancellor for research, graduate studies and professional programs of the State University of New York. Presentations by speakers from internal medicine, podiatry, dentistry and optometry discussed the role and structure of residency training programs in their particular professions,

as well as the specialty credentialing process.

Panelists for the symposium included: Debbie M. Jackson, B.A. M.A., associate secretary of the Residency Review Committee for Internal Medicine, Accreditation Council for Post Graduate Medical Education: Richard Baerg, D.P.M., M.P.H., director of podiatric service of the Department of Medicine and Surgery, Veterans Administration: John Hasler, D.D.S., associate dean of the College of Dental Surgery, University of Maryland; and Bradford W. Wild, O.D., Ph.D., associate dean of the School of Optometry, University of Alabama in Birmingham, and a member of the Council on Optometric Education. The symposium was well received by the members and the many quests from the Council on Optometric Education and the American Optometric Association's Task Force on Specialty Certification.

#### **Next Year's Program**

Among ASCO's programs for the coming year are activities to strengthen recruitment of students and placement of graduates, further development of a data base for student clinical encounters, assessment of faculty and administrator development/training needs, and revision and reissue of the ASCO Residency/Graduate Programs Directory and Handbook for Teachers in Schools and Colleges of Optometry.

The University of Montreal, School of Optometry, and the Northeastern State University, College of Optometry in Tahlequah, Oklahoma, received resolutions recognizing their having achieved full accreditation status this year.

In assuming the presidency of ASCO, Dr. Hopping applauded the achievements during the term of retiring President Willard B. Bleything, O.D., M.S., dean of the College of Optometry at Pacific University, Forest Grove, Oregon; and pledged his utmost efforts to move optometric education forward and address the many issues facing the schools and colleges.

### **Journal Report**

The Journal of Optometric Education (JOE) continues on a solid footing this year with an ample backlog of manuscripts for publication, a steady base of subscriptions and distribution, additional award recognition from the Optometric Editors Association, and positive feedback from readers. Also, for the first time, the Journal achieved its income revenue line in the ASCO budget with the help of one major advertiser during the year.

#### **Editorial**

Four issues were published during 1982-83 containing a total of 17 papers and reports. Fifteen of these were original papers, and two were staff-prepared reports. Four topics of interest were highlighted: (1) the elements and definition of faculty workload; (2) behavioral objectives and their use in establishing clinical performance standards; (3) a model contact lens curriculum; and (4) a student tutorial model.

A major three-part paper authored by Willard B. Bleything, O.D., entitled "On the Workload of Faculty." was featured in one entire issue of JOE. In addition, papers dealing with a variety of other topics were published: patient communication, orientation of new optometry students through clinical case presentation, non-print instructional media in continuing education programs, optometric practices in Ohio, a computer-assisted analysis of curriculum content, the accelerated O.D. program at NEWENCO, residencies at the PCO Eye Institute, and the Visiting Scholars Program at UAB. Also, a thought-provoking article on the rewards of good teaching and a description of a programmed course in geometric optics were included.

Special emphasis was given to improving the substance and content of editorials this year. This effort was rewarded with an award for "Best Editorial" in the Optometric Editors

Association annual Journalism Awards Contest. The winning editorial was "Producing Competent Clinicians: The Role of Behavioral Objectives," by Felix M. Barker, II, O.D., tract coordinator for internal clinical education programs at the Pennsylvania College of Optometry. Also, the editorial, "Cost of Education—Whose Responsibility?" by Lee W. Smith, ASCO executive director, won an honorable mention for the "Best Editorial." Other editorials were, "Faculty Workloads in a Recessionary Economy," by Vonne F. Porter, Ph.D.; "Health Care: A Profession or a Business?" by the Rev. Kevin D. O'Rourke, O.P.; and "The Role and Responsibility of a Trustee," by William K. Selden.

Once again, the *Journal* is on a timely publication schedule with nearly a one-year's lead time on manuscripts available for publication. JOE also is in a better position to be more selective about accepting manuscripts; this past year two manuscripts were rejected for publication and four others were returned to the authors for extensive

revision. The JOE Editorial Board continues to perform an excellent job of reviewing and critiquing manuscripts to maintain a high quality journal.

#### **OEA Awards**

The Journal has been honored again with several awards in the Optometric Editors Association annual Journalism Awards Contest. As mentioned previously, two awards in the "Best Editorial" competition were received. In addition, the article entitled "A Mini Course on Patient Communication for Optometry Students," by Edward S. Bennett, O.D., received the runner-up, cowinner award for "Best Original, Non-Technical Article."

## Distribution and Subscriptions

Conversion of the JOE mailing list to the WANG has been very effective in allowing the production of mailing labels and mail out of the *Journal* to be done more quickly and efficiently. It also has enhanced the production



Dr. Miton J. Eger (right), outgoing president of the Optometric Editors Association (OEA), presents the "Best Editorial" award to Harriet Long, managing editor of JOE, at the OEA annual meeting in June, 1983

## Journal Report (continued)

of timely billing and renewal notices. Total distribution of each issue continues at about 1600 copies.

This past year, a policy of offering bulk purchase of extra copies of JOE to the schools at \$75 per hundred was instituted. This has received good response, with about 100-150 additional copies of each issue being purchased by the schools.

No attempt was made during the past year to raise subscription rates for the Journal. However, in view of the fact that the subscription rate has remained the same since the Journal's inception and with continuing increases in production and mailing costs, serious consideration will have to be given this during the coming year.

#### **Production and Advertising**

Some problems were experienced this year with the company which had been printing JOE for the past five years. These problems seriously jeopardized the quality and timing of the Journal. As a result, the decision was made to seek bids from new printers, and consequently, a major increase in printing cost was experienced. Every effort will be made to keep these additional costs at a minimum; however, the increase certainly may have an effect not only on appearance, but also on subscription

rates, advertising and other cost elements.

At the same time, continued efforts at generating advertising for the *Journal* have met with mixed results. An expanded mailing list of potential advertisers was developed, and advertising packets were updated and distributed to all of the contacts, as well as follow-up issues of JOE.

One major advertiser throughout the year has helped to meet the income revenue line in the ASCO budget for the first time. Some overlap with the ASCO sustaining member program also has been experienced which has generated discussion about the possibility of offering advertising to sustaining member companies at a reduced or cost-only rate. If such a program is of interest, it might build a base upon which additional advertising could be generated. These efforts will continue to be pursued during the coming year in order to defray more of the Journal's costs.

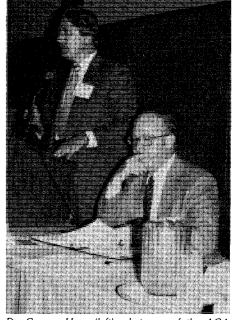
#### Readership

Personal feedback from authors, members of the editorial board, and others within the profession throughout the year has indicated a continued high interest in and readership of the *Journal*. Letters have been received from students asking for infor-

mation about JOE, and the Journal was cited by AOA President Wendell Waldie, O.D., in a summary of a state presidents' meeting held last September. In addition, a request was received from a national textbook company to provide photographs from JOE files for a new book giving career information about optometry.

#### Summary

In conclusion, the Journal has maintained a stable operation during the year with a steady flow of manuscripts continuing to be received and ongoing recognition of quality and reader interest. Some problems were experienced with production which have caused an increased cost in printing, but at the same time, JOE has been able to meet its income revenue line in the budget for the first time. Continued efforts at generating advertising for the Journal will continue into the coming year, as well as an ongoing commitment to publish a high quality, professional educational journal for the profession.



Dr. George Haas (left), chairman of the AOA State Legislative Affairs Committee, discusses educational requirements and state licensure before attendees at the ASCO 1983 annual meeting.



Dr. Edward R. Johnston (left), newly-elected president-elect of ASCO, talks with Dr. William R. Baldwin, dean of the College of Optometry, University of Houston, during one of the coffee breaks at the ASCO annual meeting held in June.

#### **Officers**

#### **Board of Directors**

#### **Member Institutions**

President:

Willard B. Bleything, O.D., M.S. Dean, Pacific University, College of Optometry

President-Elect:

Richard L. Hopping, O.D. President, Southern California College of Optometry

Vice-President:

Edward R. Johnston, O.D., M.P.A. President, State University of New York State College of Optometry

Secretary-Treasurer
Jack W. Bennett, O.D.
Dean, Ferris State College
College of Optometry

Immediate Past President:
Alfred A. Rosenbloom, Jr.
O.D., M.A.
Illinois College of Optometry

#### Councils

Council on Academic Affairs: Douglas Poorman, Ph.D. Southern California College of Optometry

Council on Institutional Affairs:
D. Leonard Werner, O.D.
State University of New York
State College of Optometry

Council on Student Affairs: James Noe, M.A. The Ohio State University College of Optometry William R. Baldwin, O.D., Ph.D. Dean, University of Houston, College of Optometry

Jack W. Bennett, O.D. Dean, Ferris State College, College of Optometry

Willard B. Bleything, O.D., M.S. Dean, Pacific University, College of Optometry

Jay M. Enoch, O.D., Ph.D. Dean, University of California, Berkeley School of Optometry

Spurgeon B. Eure, O.D., M.A. President, Southern College of Optometry

Gordon G. Heath, O.D., Ph.D. Dean, Indiana University, School of Optometry

Frederick W. Hebbard, O.D., Ph.D. Dean, The Ohio State University, College of Optometry

Richard L. Hopping, O.D. President, Southern California College of Optometry

Edward R. Johnston, O.D., M.P.A. President, State University of New York, State College of Optometry

Henry B. Peters, O.D. Dean, University of Alabama in Birmingham, School of Optometry/ The Medical Center

Boyd B. Banwell, O.D., D.O.S. President
Illinois College of Optometry

F. Dow Smith, Ph.D. President, The New England College of Optometry

Melvin D. Wolfberg, O.D. President, Pennsylvania College of Optometry The University of Alabama in Birmingham School of Optometry/The Medical Center University Station Birmingham, Alabama 35294

University of California, Berkeley School of Optometry 101 Optometry Building Berkeley, California 94720

Ferris State College College of Optometry Big Rapids, Michigan 49307

University of Houston College of Optometry 3801 Cullen Boulevard Houston, Texas 77004

Illinois College of Optometry 3241 South Michigan Avenue Chicago, Illinois 60616

Indiana University School of Optometry Bloomington, Indiana 47401

Inter American University of Puerto Rico G.P.O. Box 3255 San Juan, Puerto Rico 00936

University of Missouri-St. Louis School of Optometry 8001 Natural Bridge Road St. Louis, Missouri 63121

University of Montreal School of Optometry 3333 Queen Mary Road #350 Montreal, Quebec, Canada H3C 3J7

The New England College of Optometry 424 Beacon Street Boston, Massachusetts 02115 Northeastern State University College of Optometry

State University of New York State College of Optometry 100 East 24th Street New York, New York 10010

Tahlequah, Oklahoma 74464

### **Member Institutions** (continued)

### **Association of Schools and** Colleges of Optometry, Inc.

### **Financial Statement**

June 30, 1983 (UNAUDITED)

The Ohio State University College of Optometry 338 West Tenth Avenue Columbus, Ohio 43210
Pacific University College of Optometry Forest Grove, Oregon 97116
Pennsylvania College of Optometry 1200 West Godfrey Avenue Philadelphia, Pennsylvania 19141
Southern California College of Optometry 2001 Associated Road Fullerton, California 92631
Southern College of Optometry 1245 Madison Avenue Memphis. Tennessee 92631

ASSETS				ı
Cash		\$	1,050.75	
Certificate of Deposit		1	12,432.00	
Intercapital Liquid Asset Fund			11,895.42	
Furn., Fixtures & Equipment less Accum. Dep.	\$13,756.10 5,562.42		8,193.68	
Automobile less Accum. Dep.	10,762.00 5,380.98		5,381.02	
Accounts Rec. from Contract Acct			5,010.30	
Prepaid Insurance			870.24	
Inventory—Career Pamphlets			1,238.40	
Inventory—Posters			894:88	
TOTAL ASSETS				\$146,966.69
LIABILITIES AND FUND BA	LANCE			
Payroll Taxes Payable		\$	88.46	
Fund Balance		_1	46,878.23	

TOTAL LIABILITIES AND

\$146,966.69

#### About the Association

Waterloo, Ontario, Canada N2L 3G1 FUND BALANCE

University of Waterloo School of Optometry Faculty of Sciences

#### **National Office Staff**

The Association of Schools and Colleges of Optometry (ASCO) is a nonprofit, tax-exempt professional educational association representing the professional programs of optometric education in the United States and Canada. Continuously training nearly 4,500 students, the schools now graduate upward of 1,100 qualified doctors of optometry per year.

ASCO was organized in 1941 and established a National Office in 1974. The National Office provides a wide range of services to the schools and represents optometric education to the public and the health community. In addition, it maintains cognizance over legislative and national affairs and provides counsel and comment on policies and programs affecting optometric education.

The association has established three major councils in the areas of Academic Affairs, Student Affairs

and Institutional Affairs. These councils review and recommend policy decisions concerning issues of importance to the Board of Directors. In addition, they maintain ongoing activities in their respective areas of responsibility.

In 1975, ASCO spearheaded the publication of the Journal of Optometric Education. Now in its ninth year of publication, the Journal is the only publication in the U.S. today devoted entirely to the educational concerns of the profession.

#### Headquarters

Association of Schools and Colleges of Optometry 600 Maryland Avenue, S.W. Suite 410 Washington, D.C. 20024 (202) 484-9406

Lee W. Smith, M.P.H., Executive Director

Harriet E. Long, Assistant to the Executive Director and Managing Editor, Journal of Optometric Education

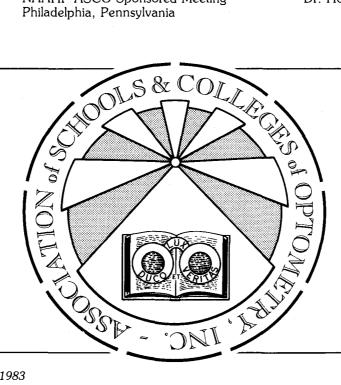
Charlotte M. Ahrendts, Secretary to the Executive Director



Lee W. Smith

### ASCO Meeting Schedule - 1983-84

Dates	Meeting	ASCO Attendees
September 10-14	NOW/AOA Mid-Year Meeting San Francisco, California	Dr. Hopping/Mr. Smith
September 19-20	Tripartite Meeting Myrtle Beach, South Carolina	Dr. Hopping/Dr. Poorman Dr. Johnston/Mr. Smith
September 28-Oct. 1	Association of Academic Health Centers, Scottsdale, Arizona	Dr. Hopping/Mr. Smith
October 5	ASCO Executive Committee Big Rapids, Michigan	ASCO Executive Committee
October 6-7	ASCO Board of Directors Big Rapids, Michigan	All Members
December 7-13	American Academy of Optometry	
December 9 a.m. December 9 p.m.	ASCO Executive Committee Joint Session with AOA Executive Committee	Executive Committee Executive Committee
January 4-8, 1984	AOSA Congress Anaheim, California	Dr. Hopping/Mr. Smith/Mr. Noe
March/April	ASCO Board of Directors Tahlequah, Oklahoma	All Members
May 12-15	IOOL Meeting London, England	Dr. Hopping/Mr. Smith
June 14	ASCO Executive Committee Honolulu, Hawaii	ASCO Executive Committee
June 15-17	ASCO Annual Meeting Honolulu, Hawaii	All Members
June 17-20	American Optometric Association Congress, Honolulu, Hawaii	
June 29	NAAHP-ASCO Sponsored Meeting Philadelphia, Pennsylvania	Dr. Hopping/Mr. Smith/Mr. Noe



## Comparison of Pharmacology Courses for Optometry and Medical Students, Indiana University, Bloomington

Sally Hegeman, Ph.D.

An argument is made by various medical organizations that optometrists are not adequately trained to use drugs for diagnostic or therapeutic purposes. Because many of these arguments arise from a lack of information about the pharmacology training for the optometrists, the following comparison and evaluation of the course of study taken by Indiana University optometry students, with that taken by medical students in the Medical Sciences Program, Bloomington, was undertaken. The Medical Sciences Program, which is part of the Indiana University School of Medicine, provides preclinical training to 30 students in each of the first two years. Because of the emphasis on academic medicine, a number of these students are pursuing an M.S. or Ph.D. degree in one of the basic medical sciences. The pharmacology program at Indiana University School of Optometry has been in existence with minor revisions since 1977.

Sally Hegeman, Ph.D., is assistant professor of optometry and adjunct assistant professor of pharmacology, Indiana University School of Optometry and Indiana University Medical Sciences Program, Bloomington.

#### **General Information**

The medical pharmacology course, which is taken by 30 second year medical students, meets four hours per week for two semesters, or 30 weeks. Three or four examinations are given in each semester along with a comprehensive final examination at the end of each semester. The exams are multiple choice and short essay. Seventy third year optometry students take five lecture hours per week of general systemic pharmacology the first semester and three hours per week the second semester. The examinations have the same format as those for medical students; however, they do not have a comprehensive final examination. Often the same examination is given to both the optometry and the medical students. When this is done, overall performance is the same; i.e., median and means for both groups are within 1 to 2 points of each other.

The textbooks for both the medical and the optometry classes vary from year to year. For the 1982-83 academic year both used C.R. Craig and R.E. Stitzel's *Modern Pharmacology* (Boston: Little, Brown & Co., 1982) as the basic text. In the past five years A. Goodman, L.S. Goodman, and A. Gil-

man's The Pharmacological Basis of Therapeutics, 5th or 6th ed. (New York: Macmillan, 1975 or 1980) has been the most frequently adopted text in the medical program. That same text-book and A. Goth's Medical Pharmacology, 9th and 10th ed. (St. Louis: C.V. Mosby, 1978 and 1981) have been used in alternate years in the optometry course. In addition, W.H. Havener's Ocular Pharmacology (St. Louis: C.V. Mosby, 1978) is a required text for optometry students.

#### Faculty

The medical pharmacology course is taught by five pharmacology faculty members from the Indiana University School of Medicine Medical Sciences Program. Each member is responsible for six weeks of lectures. The optometry course is taught by four or five faculty members, three of whom teach in the Medical Sciences Program pharmacology course. These three faculty members are responsible for the majority of training in general pharmacology for the optometry students. Ocular pharmacology is taught by an optometrist-pharmacologist who is a faculty member of both the Indiana University School of Optometry and the Medical Sciences Program. The fifth instructor teaches medical and pharmacy students at another university.

#### Content

The content of the two courses as taught in the 1981-82 academic year is summarized in the accompanying table.

As can be seen from Table 1, 58 hours (footnotes b and c) of optometry instruction are the same as for medical students (Indiana University, Bloomington, or other medical schools), and 25 hours (footnote a) are very similar.

Thirty-seven hours are devoted to ocular pharmacology for optometry students only.

#### Conclusion

Approximately two-thirds of the pharmacology training of optometry and medical students is the same. The one-third difference between the groups is determined by their respective professional requirements. Optometry students have more intensive training than medical students in autonomic agents, local anesthetics, ocular basic principles, and bacterial, fungal, and viral chemo-

therapy, especially as they apply to the eye. Medical students have more intensive training in toxicology and in cardio-vascular and central nervous system pharmacology than optometry students. In addition, the medical students study gastrointestinal pharmacology, cancer chemotherapy, and treatment of worms and protozoal infections which are not included in the optometry curriculum. Thus, the optometry student receives special training in ocular pharmacology and the medical student obtains the necessary breadth and depth to meet his career needs.

TABLE 1
Content of Medical and Optometry Pharmacology Courses

	Lectur	e Hours
Subject	Medicine	Optometry
Basic Principles—Systemic Basic Principles—Ocular	12	12ª 5
Autonomic Agents—Systemic Autonomic Agents—Ocular	14	14 <sup>b</sup> 10
Cardiovascular Agents	10	<b>4</b> c
Renal Agents—Systemic —Use in Ocular Disease	4	3ª 1
Chemotherapy (bacterial, viral, fungal)—Systemic —Ocular Chemotherapy	12	12 <sup>6</sup> 9
Chemotherapy (cancer, protozoan, worms, etc.)	10	0
Toxicology—Systemic —Ocular	8	2° 2
Steroids, Anti-inflammatory—Systemic —Ocular	5	4 <sup>b</sup> 2
Non-steroidal Anti-inflammatory	4	<b>4</b> a
Local Anesthetics—Systemic —Ocular (topical) Anesthetics	2	2ª 2
Narcotic Analgesics	4	<b>4</b> a
CNS	20	10 <sup>b</sup>
Endocrine	10	10 <sup>b</sup>
GI	3	0
Drug Interactions	2	<b>2</b> <sup>b</sup>
Vitamins	0	3
Ocular Manifestations of Systemic Drug Administration	0	3
Total Lecture Hours	120	120

<sup>&</sup>lt;sup>a</sup>Lecturer different for the two courses, but lecturer taught material to medical students within last five years.

<sup>&</sup>lt;sup>b</sup>Same lecturer and lectures for medicine and optometry.

<sup>&</sup>lt;sup>c</sup>Teaches same block of material to medical students at another university.

		<u>ere</u>	Li	a P	A-1		t ti		e i	e i	hti			gjj	ru s				HIL	7 <b>2</b> 5 5
	•			Yal.				ini		ume			TI	4 F S	PA			et	uik	5 PC
<b>)</b> // 52.	ø			Z3H	tac	T I	.KKS		eck	UPS										
- 53.	<b>\$</b> ₽)	<u>afa</u>	cts	i i	9-1	E51	: ID		e I	e e		i en 1			alu	eadi	bi	ien	<b>TH</b>	łOUt
	b				Paj	len i	25	ħET	urk	Li	OP.									
55.	4				AZ.	kot		Eħ.	Thi											
56.					ħ5			HRC	uch	LL										
57.	a p	L Fa H	KTE	a e	10-	TE	it t	<b>j</b> 5	ZE	if.	Pat	TEN	it i	ias	BE	1H 1	MAC	105	e d	ISPI
5e.	i i			sih	G C	YCI	.HE													
59.				1-5	TN3	LZ	¥IS	ION	CY	CLE			5-	SOP	T M	EGUL	AF	CL	CY	TLR

Harris Nussenblatt, O.D., M.P.H.

## As An Optometric Educational Tool

	60.	♦ 2-BIFOCAL CYCLE 6-GAS PERMEABLE CL CYCL
M	61.5	⇒ 3-TRIFOCAL CYCLE 7-ASTIGNATIC CL CYCLE
	62.	* 4-HARD CL CYCLE 8-EXTENDED WEAR CL CYCL
	63.	**********************************
a	64.	
	65.	* STORAGES 1-RECEPTIONIST
<b>₩</b>	66.	2-ASSISTANT
4	67.	* 3-OPTOMETRIST
100	68.	* 4-CHAIRS IN RECEPTION AREA
	69.	*************************
<b>A</b> -	70.	
	71.	* MATRIX SAVEVALUES 1-SEQUENCE FOR PERSONNEL TO SEE PATIE
	72.	* 2-TIME DISTRIBUTION TO SEE PATIENTS B
	73.	<b>VISIT</b>
5	74.	<b>***********************</b>
la la	75.	
<b>6</b> 0 m	76.	* SAVEVALUES
1	77.	
100	78.	* SGV-NUMBER OF SINGLE VISION RX'S SOLD
<b>4</b>	79.	⇒ BIF-NUMBER OF BIFOCAL RX'S SOLD
T help	80.	TRI-NUMBER OF TRIFOCAL RX'S SOLD
[16]	81.87	SGV2-NUMBER OF SECOND PAIR SINGLE VISION SOLD
. <b>0</b> 1/1	82.	★ BIF2-NUMBER OF SECOND PAIR BIFOCAL SOLD
5 7 19	83.	⇒ TR12-NUMBER OF SECOND PAIR TRIFDCAL SOLD
g ho	84.	# HCL-NUMBER OF HARD CONTACT LENSES SOLD (PAIR)
	85.	⇒ SCL-NUMBER OF REGULAR SOFT CONTACT LENSES SOLD (P.
Ž 21	86.	* GASP-NUMBER OF GAS PERMEABLE CONTACT LENSES SOLD (1
1 2	87.	ASTCL-NUMBER OF ASTIGMATIC SOFT CONTACT LENSES SOLD
	88.	* EWCL-NUMBER OF EXTENDED WEAR SOFT LENSES SOLD (PAIN
6 24	89.	* HCLSA-NUMBER OF HARD CONTACT LENS SERVICE AGREEMENT:
8 25	90.	SCLSA-NUMBER OF SOFT CONTACT LENS SERVICE AGREEMENT:
	91.	* GPSA-NUMBER OF GAS PERMEABLE CONTACT SERVICE AGREEM
\$ PL	92.	ASTSA-NUMBER OF ASTIGNATIC CONTACT SERVICE AGREEMEN
<b>[</b> ]	93.	
8 <b>(3)</b>	94.	DUT-NUMBER OF PATIENTS WHO LEAVE WITHOUT BEING SEI
jaq	95.	* INCOM-TOTAL INCOME
	96.	* EXPEN-TOTAL EXPENSES

Optometric educational institutions traditionally have provided practice management courses for optometry students. These courses frequently are taught by either full-time faculty or private practitioners who give the students information concerning the dos and don'ts of setting up and running a practice. One criticism of this process has been that the students are not able to get any hands-on experience in running a practice in the same manner they receive hands-on clinical training. Ideally, students should be able to use practice management skills taught in the classroom in a real practice to observe their decision-making abilities and the consequences. Since there are very few practitioners (or institutions) who would be willing to invest the capital needed for such an exercise, other means need to be available for students to practice their administrative skills in such a way that would evaluate their ability to make practice management decisions.

One tool that is available for this type of exercise is the simulation of the running of an optometric office through the use of computers. If an office designed and run by students could be simulated, then students would have the opportunity to experience the results of their decision-making abilities and would be provided with a means by which they could put to use the skills taught to them and receive feedback while in a classroom setting.

A computer program to simulate the optometric office has been written in a discrete event simulation language called General Purpose Simulation System V (GPSS V).1 Discrete event simulation is a technique in which activities (such as running an optometric office) are described both in terms of its state at a given point in time and also by its changes with time. Whenever a significant event occurs such as a patient entering the office, the model temporarily stops and analyzes the practice, similar to freezing the activity by taking a picture. Repeated pictures of major activities gives the impression of changes with time. An analogy is the movement of motion picture film such that individual frames produce a moving picture.2 Each activity contributes to the overall characteristics of the office and is reported over time by the program's summary information at the run's conclusion. GPSS V is a simulation language that has been used extensively in manufacturing and other industrial areas to simulate specific operations

prior to implementing changes so that predictions could be made concerning the changes. It is an ideal language for modeling an optometric office because the program is designed to be flexible, easy to use, and can print out appropriate statistical information concerning the practice. The computer program requires that the students determine how they will run their practice in just about every practice parameter and is flexible enough to adapt to most practice configurations.

taught the GPSS V programming language nor are they expected to learn how to run the simulation. All practice parameters are given to the course instructor who is the only one who interacts with the computer model.

The intent of the simulation is to provide a realistic experience in setting up an office. Students begin the exercise by determining how they would set up an office and the cost of its operation. Students are required to visit area optometrists and to question the optome-

"A computer program to simulate the optometric office has been written . . . in which activities (such as running an optometric office) are described both in terms of its state at a given point in time and also by its changes with time."

Students must make a variety of practice decisions as they determine their practice. Students must specify the numbers, types, and salary of each staff member hired, the types of services offered, fees to be charged, the level of frame and contact lens inventory, and all office expenses including both initial capital costs and estimated monthly operating expenses. The students also must specify the patient flow characteristics of the practice. As an example, if a patient is coming into the office for an examination that results in no prescription, then students must specify the sequence in which office personnel see the patient and the mean service time each person will spend with the patient.

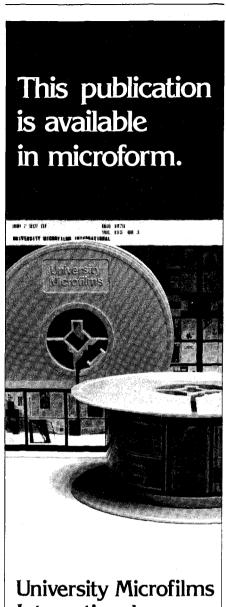
The model then uses this information to generate a patient flow through the practice according to a preprogrammed sequence based on random number generation of patient visits. The random number generation permits the model to realistically simulate the practice since some of the time patients will be seen quickly and other times will be delayed. Patients excessively delayed will leave without being seen.

The simulation is run as part of an elective practice management course given primarily to fourth professional year students. The course is designed to be a practice management course with some emphasis in the use of computers in the optometric office. Even so, the computer model is used only as a tool in the design and implementation of the model practice and students are not

trists on practice management related issues such as fee schedules, frame inventory, personnel costs, patient flow, services offered, and appointment scheduling. At the same time, students are given in-class information in completing bank loan applications, determining equipment needs, determining personal financial worth, resume writing, and calculating start-up costs and projected cash flow.

At the end of the first six weeks of the semester the students must make a presentation to the instructors using the loan application they have prepared. The students are told how much money they may borrow to set up their practice, the interest rate charged, and the monthly loan payments. In addition to the bank loan proposal, the students turn in a report specifying the operational characteristics of their practice as mentioned before (office staff, inventory, patient flow, services, etc.). All of these initial practice characteristics are entered into the model which is then simulated for a one month time period. The instructor then gives the students the resultant information concerning patient flow, waiting times, numbers of patients seen by type of visit, personnel utilization statistics, number of frames and lenses dispensed by type, number of contact lenses fit by type as well as any special characteristics such as contact lens service agreements. The students must then analyze the practice by calculating revenues, expenses, and the resultant profit or loss and must also

Harris Nussenblatt, O.D., M.P.H., is an assistant professor at the University of Houston, College of Optometry, Houston, Texas.



University	<b>Microfilms</b>
Internation	nal

for	of publications
Institution	
Street	
City	1
StateZip	
300 North Zeeb Road Dept. P.R. Ann Arbor, Mi. 48106 U.S.A.	30-32 Mortimer Street Dept. P.R. London WIN 7RA England

look at patient flow through the practice and personnel utilization statistics. A written summary is turned in to the instructors that must include this evaluation as well as proposed changes in the practice for the next period of opera-

At the same time that this process is underway, guest speakers from the community are invited to the class to discuss various aspects of managing practices. The speakers deal with such issues as practice incorporation, hiring and firing personnel, salary levels, dealing with laboratories, and buying frames. The model is run a number of times during the semester with a minimum of six months of simulated practice operation. At the end of each simuprograms such as Visicalc and Visifile. The programs are basic businessoriented, easily understood computer programs that permit one to control inventory levels, determine profit and loss statements and do elementary financial modeling. The programs demonstrate to the students the ease of use of the programs and the kinds of information that can be obtained from them. As an example, students are taught how to utilize the financial spreadsheet program called Visicalc. This program can, among other things, calculate profit and loss based on data entered into a predetermined format. Students enter their fee schedule, monthly patient load, and expenses from their model practice and

"The computer simulation has proven to be a useful tool that provides students with a new approach to dealing with the practice management related aspects of optometric practice."

lation, students are required to analyze the resultant operation and indicate the practice's state of health.

One interesting aspect of the model is that it can be programmed to respond to practice strengths and weaknesses. As an example, if the instructors see that students are setting fees too high, are not offering enough services or the wrong types of services, the model can be adjusted to decrease the patient load coming into the practice. The resultant analysis by the student will show decreases in revenue and student's responses to evaluating the cause and correction of the problem can be seen. As another example, if students feel that patient loads can be increased by beginning recall programs or getting involved in the community to generate patients, an increased patient load can be programmed into the model.

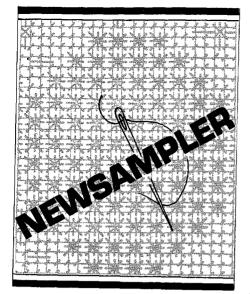
It was mentioned that the computer language utilized in constructing the model was not taught to the students because this is not a relevant part of running a practice. The course does include, however, instruction in the use of computers in the office primarily through the use of microcomputers such as the VIC-20 and the Apple II Plus. Students are taught the basics of the BASIC computer language and the use of popular data base management

the program then does all the necessary calculations to determine monthly and year-to-date figures for both overall income and individual expense categories. These programs also permit the student to think in management terms and to develop a logical thinking in approaching practice administration.

The computer simulation has proven to be a useful tool that provides students with a new approach to dealing with the practice management related aspects of optometric practice. The addition of inclass speakers, visits to optometric practices, and instruction in elementary aspects of the use of computers in office settings to the simulation has been well received by the students. It has provided them with feedback concerning their management decision-making abilities, and the skills learned in the course should be of value to them when they establish their practices.

#### References

- 1. Nussenblatt, H. Computer simulation of an optometric practice. Amer J Optom Physiol Opt 1983; 60(9), in print.
- Bobillier P, Kahan B, Probst A: Simulation with GPSS and GPSS V. Englewood Cliffs, Prentice Hall, 1976.
- Schriber T: Simulation Using GPSS. New York, John Wiley and Sons, 1974.



(continued from page 7)

#### **OSU Fund Honors Glenn Fry**

Ohio State University's College of Optometry hopes to raise at least \$250,000 to honor its former director, Dr. Glenn A. Fry.

The Glenn A. Fry Professorship Endowment Fund, established in May of this year by the university's Board of Trustees, will receive contributions for

the campaign. It was created with initial gifts of \$6,000 from College of Optometry faculty to the Development Fund, Ohio State's fund-raising office.

These and future contributions will be invested in the university's permanent endowment fund. Once \$250,000 is raised, a professorship in physiological optics will be established in Dr. Fry's honor.

Dr. Fry retired from the university in 1979 as professor emeritus after 44 years on the faculty. During his tenure he was instrumental in establishing the graduate program in physiological optics and developed standards for spectacle lenses and eyewear that are used throughout the world.

Contributions for the Fry Professorship may be sent to the Office of the Dean, College of Optometry, 338 W. Tenth Ave., Columbus, Ohio 43210.

## Houston Receives Outstanding CPR Program Citation

The University of Houston College of Optometry Cardiopulmonary Resuscitation (CPR) Program has been named "An Outstanding CPR Program for 1982-83" by the American Heart Association—Texas Affiliate.

The college has sponsored a CPR program since 1975 as part of its emergency care curriculum. Optometry students, as well as some faculty and staff, have been certified as CPR Instructors by the American Heart Association.

The optometry students and faculty have certified approximately 1,000 CPR instructors during the program's eight years. Also, the optometry CPR program has trained more than 1,000 people throughout the Houston community and in Louisiana.

The optometry college also offers CPR as part of optometric continuing education. Last year, the college faculty trained more than 100 optometrists in Minneapolis as well as a group of Dallas optometrists.

## Keeping Up with People...

The **Honorable Kenneth Lee**, a practicing lawyer in Dushore, PA, is the 1983 recipient of the Pennsylvania Col-



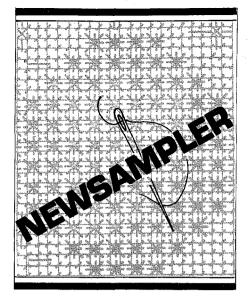
The Honorable Kenneth Lee, a practicing lawyer in Dushore, PA, is the 1983 recipient of the Pennsylvania College of Optometry's Distinguished Service Award.

lege of Optometry's Distinguished Service Award. As a member of the college's Board of Trustees for six years, Lee was chairman of the executive committee, vice-chairman and acting chairman of the board. Lee continues to serve as a legislative consultant to the college.

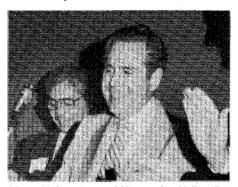
Martin Hafter, O.D., of Hunting-



Dr. Alden N. Haffner, associate chancellor for health sciences, State University of New York (right), presented a check for \$300,000 to Dr. Edward R. Johnston, president of the State College of Optometry, State University of New York, toward the establishment of a new Institute for Vision Research at the college. Dr. Haffner also serves as chairman of the Board of Trustees of the Optometric Center of New York, the college's campus-related foundation which contributed the funds. The new Institute's formal dedication is set for October, 1983.



don Valley, PA, was honored as the Pennsylvania College of Optometry's "Alumnus of the Year" at the school's recent alumni reunion. Dr. Hafter, a member of the class of 1949, was recognized for his many years of support to the college. With his aid, the Hafter Electrodiagnostic Service, Hafter Electrophysiology Lab, a new computer system for the college's Eye Institute, and scholarships were established.



Martin Hafter, O.D., of Huntingdon Valley, PA, was honored as the Pennsylvania College of Optometry's "Alumnus of the Year" at the school's recent alumni reunion.

In addition to his part-time optometric practice in Huntington Valley, Dr. Hafter is president of ESCO Electric Supply Company, Lansdale, PA. ESCO, the largest independent electrical supplier in the country, was founded when Hafter was a student at PCO.

**Dr. Edward R. Johnston,** president of the State University of New York's State College of Optometry, received the Leadership Award from the New York State Optometric Association at its annual congress, June 17. The award was presented to Dr. Johnston in

recognition of his role as a catalyst in bringing together the academic optometric community and the greater community of practicing optometrists throughout New York State.

**Dr. Allen Cohen** and **Dr. Steven Lieberman,** faculty members at the State University of New York (SUNY), State College of Optometry, received the Distinguished Achievement Award from the New York State Optometric Association at its annual congress, June 17.

Dr. Cohen, associate clinical professor, and Dr. Lieberman, assistant clinical professor, received the award in recognition of their initiation, implementation and completion of an innovative school vision screening project which was jointly sponsored by the N.Y. Department of Education, the state optometric association and the four-year college. The battery of vision training tests was used to screen more than 6,000 first to sixth grade children.

**Dr. Irwin B. Suchoff,** professor of optometry at SUNY College of Optometry, has been named associate



Dr. Irwin B. Suchoff

dean for professional programs. **Dr. Dean Yager,** professor of vision sciences at SUNY, has been appointed associate dean for graduate programs and research.



Dr. Dean Yager

**Steven Mathews, O.D.,** was the recipient of the Auxiliary to the American Optometric Association's 1983 \$3,000 fellowship. The presentation



Steven Mathews, O.D., was the recipient of the Auxiliary to the American Optometric Association's 1983 \$3,000 fellowship. The presentation was madse by Sandra Parker, education-research trustee.

was made by Sandra Parker, educationresearch trustee, on June 30 during the closing session of the organization's 56th annual meeting in Washington, D.C. Dr. Mathews is a candidate for a Ph.D. in vision science at the State University of New York College of Optometry.

**Drs. Dale Cox** and **David A. Goss,** assistant professors at Northeastern State University College of Optometry, Tahlequah, Oklahoma, also received a \$3,000 research grant for their project, "Statistical Analysis of Parameters of Myopia Progression," at the Auxiliary's annual meeting.

Funds for the annual fellowship and research grant program are derived from eight percent of each Auxiliary member's annual dues and more than \$96,000 has been awarded since 1962.

James A. Stewart, O.D., of Montrose, Michigan, recently was appointed Alumni Council director for the Great Lakes region of the Illinois College of Optometry, replacing Janice Scharre, O.D., M.A., who resigned the position.

The 81st Annual Congress of the Kentucky Optometric Association, held April 30-May 2 in Louisville, was dedicated to **Dr. Spurgeon B. Eure.** Dr. Eure will be retiring as president of Southern College of Optometry in Memphis in 1984. Dr. Eure was selected in recognition of his years of devoted service to the profession of op-

tometry throughout the nation, but

especially in Kentucky.

Five optometry students collected a total of \$2,500 in awards for two research papers submitted in the OEP-sponsored Skeffington-Alexander, Knight-Henry Memorial Awards competitions. The awards, and \$500 for each student-participant in both studies, were presented during campus programs.

Illinois College of Optometry students

Thomas McGrath, James

Hughes and Michael Kline won the
new Skeffington-Alexander Memorial

Award competition with their paper on

"The Effect of Video Display Devices on the Human Visual System."

Francis Michael Terranova, Jr., and Kristi Mitchell Remick of Southern California College of Optometry, won the Knight-Henry Memorial Award competition with their paper, "Preferential Looking: Monocular vs. Binocular Visual Acuities of Infants," which appears in the OEP June 1983 Curriculum II.

Illinois College of Optometry students **Maureen Black** and **John Rubsam** received honorable mention in the Knight-Henry Memorial Award competition. Their paper, "Ocular Perform-

ance and its Relation to Learning Disabilities—A Literature Survey," appears in the OEP July 1983 Curriculum II "Special Reports" section.

Dr. Chester H. Pheiffer, dean of the College of Optometry at Northeastern State University, was named Executive of the Year for the Tahlequah Chapter of Professional Secretaries International. This honor is given to the executive who has demonstrated the highest participation and support of PSI. Nominations for the award are submmitted each year by members of the various PSI Chapters throughout the nation.

#### Dr. Rosenbloom Returns from Asian and South Pacific Lecture Tour

Serving as an educational ambassador, lecturer and consultant for international optometry marked the five-month tour of ICO's first Distinguished Professor of Optometry, Dr. Alfred A. Rosenbloom. His tour included seven countries and participation in two international optometric congresses. While on sabbatical, his first in 34 years. Dr. Rosenbloom's travels began in June in Taipei, Taiwan, and ended in Auckland, New Zealand, in late November. In July he participated as a keynote speaker at the 4th Asian Pacific Optometric Congress in Manila. Over 600 delegates and guests from eleven countries were in attendance.

Following the congress Dr. Rosenbloom organized and conducted a fiveday Symposium on Optometric Education for the deans and faculties of the eight schools of optometry in the Philippines. The goal of expanding the optometric program of study in length and scope was accomplished through planning for the preparation of behavioral objectives, curriculum expansion and development, and clinical organization for training in primary care optometry.

From the Philippines, Dr. and Mrs. Rosenbloom traveled to the Orient where he addressed members of the Hong Kong and Singapore optometric associations. While in Hong Kong and Singapore, he also presented multidisciplinary lectures and clinical seminars on low vision to the professional staff, optometrists and ophthalmologists in these countries' associations for the blind. A particularly significant presentation was made in Bangkok to the medical and ophthalmological staffs at the Siraraj Hospital. This presentation was important in that it marked the first low vision seminar in Thailand history. It is hoped that these lectures will stimulate the development of low vision services for Thailand, a country of fifty million people where no low vision care exists at this time.

In addition to formal presentations, Dr. Rosenbloom served as a consultant to professional administrators of associations for the blind in each of these countries. He also assisted optometric colleagues in planning for the development of low vision clinics with interdisciplinary staffing.

During his two months in Australia,

he was appointed a visiting professor at the School of Optometry, University of Melbourne, and consultant-examiner at the Kooyong Low Vision Clinic of the Association for the Blind. During this time he met with several leading educators in the field of gerontology while preparing for a forthcoming, co-edited textbook on vision and aging. He also participated as one of the principal lecturers at the mid-October 4th International Optometric Congress of the Australian Optometrical Association at Surfers Paradise, Queensland, Australia. Mrs. Sarah Rosenbloom, lecturer in the Department of Education, Field Museum of Natural History in Chicago, addressed the Auxiliary on highlights of her recent three-week tour of China.

Dr. Rosenbloom's final month was spent in New Zealand serving as a curriculum consultant to the dean of the School of Optometry, University of Auckland. He also presented lectures in key cities, concluding with a four-day advanced low vision seminar for teachers of the visually impaired, social workers, optometrists and ophthalmologists at the Royal New Zealand Foundation for the Blind's Homai College, the country's residential school for visually impaired children and youth.

In speaking of his experiences, Dr. Rosenbloom reflected on the professional and social significance of his travels. He was particularly impressed by the recognition of America as the dominant force in world affairs and the status of American optometric education as the international model.

Dr. Alfred A. Rosenbloom, ICO's Distinguished Professor of Optometry returned recently from New York where he participated as a member of the American Foundation for the Blind (AFB) Low Vision Advisory Committee and as optometric consultant to AFB's National Advisory Committee for Later Years.

Dr. Rosenbloom will be a contributing chapter author to AFB's new Handbook on Vision and Aging. He also was appointed as chairman of a legislative task force to work with AFB's Washington staff concerning legislative advocacy for inclusion of comprehensive low vision services in Medicare. This group will also seek an amendment to the Older Americans Act to include professional services appropriate to the needs of visually impaired elderly persons.

The American Foundation for the Blind, a national, non-profit organization, provides both direct and technical assistance services to blind and visually impaired persons and their families. The AFB serves professionals in specialized agencies and groups for blind and visually impaired persons of all ages.

## NERF International Contact Lens Congress

The National Eye Research Foundation is sponsoring its 28th International Contact Lens Congress on November 6 to 10, 1983, at the world famous Caesar's Palace in Las Vegas, Nevada.

The theme for this year's congress is "Set Your Sights on the Future in Eye Care." The host of speakers assembled for this congress are currently researching futuristic lenses, solutions and instrumentation. This year's program will cover new gas permeable lenses, bifocal soft lenses, and how to get involved in handling athletes to improve their performance and efficiency. There also will be an assistant's program as well as activities for the spouses. Grand Honours will be awarded to outstanding contributors in the eye care field along with a host of international and national speakers.

Anyone who would like to present a paper at this congress or attend the meeting, please write or call Waneta J. Reynolds, executive secretary, for details at: The National Eye Research Foundation, 18 South Michigan Avenue, Suite 902, Chicago, Illinois 60603, telephone: 312/726-7866.

#### Illinois Low Vision Society

The Illinois Low Vision Society (ILVS) recently convened to hold elections for its executive officers. Founder and immediate past president Dr. Thomas Stelmack handed over the gavel to incoming chief Dr. Alfred Rosenbloom, Jr. Dr. Rosenbloom praised and congratulated Dr. Stelmack for his pioneer effort in founding the society and leadership over the past four years. Drs. Timothy McMahon and Ronald Krefman were named co-secretary/treasurers.

ILVS was founded for the purpose of enhancing interprofessional communication, research, and community awareness of the low vision field. With this reaffirmation towards these goals the society has expressed an interest to increase its membership. Those interested should contact Dr. Timothy McMahon, Suite 3. 164, Eye and Ear Infirmary, 1855 W. Taylor, Chicago, IL 60612.

#### Eighth Symposium on Ocular and Visual Development

The Eighth Symposium on Ocular and Visual Development will be held Saturday and Sunday, October 15 and 16, 1983 at the Eye Institute, Pennsylvania College of Optometry, Philadelphia, Pennsylvania. The topic of this year's symposium is "Heredity and Visual Development."

Sessions will include an introductory lecture by R.L. Sidman, a session on albino animals (U. Drager, I. Cucchiaro and R. Guillery), one on human retinal diseases (H. Ripps and J. Marshall). one on animal models of retinal degeneration (R. Mullen, G. Aguirre, and G. Chader) and one on cataract and corneal dystrophy (G. Inana, J. Piatigorsky and J. Hassel). A poster session for contributed papers is planned. For information please write S.R. Hilfer, J.B. Sheffield, or L. Tompkins, SOVD, Department of Biology, Temple University, Philadelphia, PA 19122 or call: (215) 787-8851.

#### Third International Symposium on Presbyopia

Essilor International, who has sponsored two previous symposia on the subject of presbyopia, announces a 3rd symposium on the subject to be held during the month of April, 1985, somewhere in Europe.

Both of the past two symposia con-

sisted of Mediterranean Sea yacht trips with stops at Capri, Malta, Sicily, Palma and other unique locations on the Mediterranean coast. These were interspersed with a series of educational and scientific presentations by invited experts chosen from a number of countries in Europe, Japan, and the United States.

A large number of invited practitioners and their wives filled the ships on both previous occasions. These practitioners represented most of the countries of western Europe as well as the United States, Canada and Japan. The speakers were likewise chosen from research and educational centers distributed throughout the scientific community. Simultaneous translations were in effect during all sessions.

The third symposium will deal with the subjects of "Direct and Indirect Mechanisms: Presbyopia and Its Evolution," "Anthropology and Biometry of Presbyopia," and "Recent or New Methods to Screen, Prevent or Correct Presbyopia." Papers should be condensed to 15 minutes for presentation. The official languages are English, French and German.

The committee organizing the symposium is headed by Dr. W. Lenne, of Essilor International and is comprised of prominent visual experts from France, Germany and the United States. Dr. Irvin M. Borish (Houston and Indiana University), Dr. Larry Stark (University of California) and Dr. David Miller (University of Harvard) are the American representatives on the committee.

Scientists and practitioners interested in participating in this forthcoming symposium should submit paper proposals, with a brief history and previous papers published or presented, to the secretary of the Scientific Committee. Individuals interested in more information should also write to the secretary at the following address: Dr. W. Lenne-Mr. J. Mur, Essilor International 1, Rue Thomas Edison-Echat 902, 94028 Creteil Cedex, France.

## **ASCO's NEW OFFICERS**



Richard L. Hopping, O.D. President

Dr. Hopping is president of the Southern California College of Optometry, Fullerton. He is a trustee of the Association of Independent California Colleges and Universities, a member of the Health Advisory Board for the State of California, chairman of the Awards Committee for the American Academy of Optometry, and chairman and member-at-large of the National Academies of Practice in Optometry. He also is chairman of the Practice Enhancement Task Force of the American Optometric Association.

Dr. Hopping served for six years as an officer of the Ohio Optometric Association including president in 1964. He was elected to the Board of Trustees of the American Optometric Association in 1966 where he served in a number of offices within the organization and as its president in 1971-72.

Besides his extensive involvement in many civic and professional organizations, Dr. Hopping has been the recipient of numerous awards and honors including the Optometrist of the Year for the State of Ohio, Outstanding Young Man of the Year for the City of Dayton and one of the Ten Young Men of the Year for the State of Ohio.



Edward R.
Johnston,
O.D., M.P.H.,
President-Elect

Dr. Johnston is president of the State University of New York, State College of Optometry, in New York City. Dr. Johnston holds various appointments and offices within the profession, including ex-officio member of the Executive Board of the New York State Optometric Association, member and chairperson of the Commission on Continuing Education of the American Optometric Association, member of the Op-

tometry Advisory Committee to the Veteran's Administration Nationally and Executive Director of the Optometric Center of New York Foundation.

Dr. Johnston has been recognized with numerous awards and honors, among them the 1983 Leadership Award from the New York State Optometric Association, the "Alumni Award" for academic achievement from the Pennsylvania College of Optometry, the "Beta Sigma Kappa Award" for leadership and "Honorable Mention" for clinical proficiency from the Pennsylvania College of Optometry, and the American Optometric Foundation Fellowship to study public administration.



Jack W. Bennett, O.D., Vice-President

Dr. Bennett is dean of the College of Optometry at Ferris State College, Big Rapids, Michigan. Dr. Bennett's professional career has included appointment to the Michigan Optometry Association—Michigan Ophthalmological Society Joint Interprofessional Task Force, service as associate professor of optometry at Indiana University, membership on the Indiana State Department of Welfare Medicaid Peer Review Committee, and conducting private practice for over a decade.

Dr. Bennett has had a distinguished record of holding various administrative appointments. He currently is president-elect and a member of the Board of Directors of the Michigan Association of the Professions, served for five years as a trustee of the American Optometric Association, and was trustee and then president of the Indiana Optometric Association.

Dr. Bennett has authored numerous papers on various aspects of optometric manpower, curriculum developments and vision care practice, and has coauthored numerous accreditation and consultation reports. He received the Distinguished Service of Optometry Award from the Indiana Optometric Association in 1974 and was named Indiana Optometrist of the Year in 1975.





F. Dow Smith, Ph.D., Secretary-Treasurer

Dr. Smith is the fifth head and second president of The New England College of Optometry, Boston, Massachusetts. Dr. Smith grew up in Toronto, Canada. Following six years in the Royal Canadian Air Force during World War II, he completed his bachelors and masters degrees in physics at Queen's University in Kingston, Ontario. He then studied at the University of Rochester in New York, where he was awarded the degree, Doctor of Philosophy in Optics.

After completing his doctorate, Dr. Smith joined the physics department at Boston University. He served as chairman of physics from 1953 to 1958 and was also director of the Boston University Physical Research Laboratory. This laboratory, which specialized in the development of large advanced cameras and lenses for aerospace use, became part of the new Itek Corporation in 1958. Dr. Smith was a central figure in the development of Itek's optics capability, and later became more broadly involved as the company's vice president and corporate scientist. Dr. Smith's research has included such areas as colorimetry, optics of the human eye, properties of optical films, ophthalmic optics and the formation of images in precision optical systems.

Dr. Smith has been active nationally and internationally during most of his career. He is a fellow of the American Academy of Optometry, the American Association for the Advancement of Science, and of the Optical Society of America of which he has served as president. He is past chairman of the National Academy of Sciences Committee on Vision and is presently vice president of the International Commission for Optics and secretary of the ANSI-Z80 Committee on Ophthalmic Standards.



# A successful optometrist needs two things. The Army offers both.

Experience: your future in optometry depends on the experience you can accumulate. And you'll get more experience in your first term in the Army than some optometrists do in a lifetime. You'll see and treat all kinds of eye problems to gain the skills and proficiency that build a rich

and rewarding career.

Independence: you can also avoid the heavy start-up costs of space and equipment for a civilian practice.

Instead of debts, the Army will give you officer's pay, plus special pay as a Doctor of Optometry, plus housing allowances, family health care, 30 days paid annual vacation.

And you'll wind up with the means to finance a future of your own choosing.

If this practice sounds inviting, get all the details. Write: Army Medical Opportunities, P.O. Box 7711, Burbank, CA 91510.

## Army Optometry. It deserves a closer look.

ASSOCIATION OF SCHOOLS AND COLLEGES OF OPTOMETRY 600 Maryland Ave., S.W., Suite 410 Washington, D.C. 20024 Non-Profit Org. U.S. POSTAGE PAID at Wash., D.C. Permit No. 46070