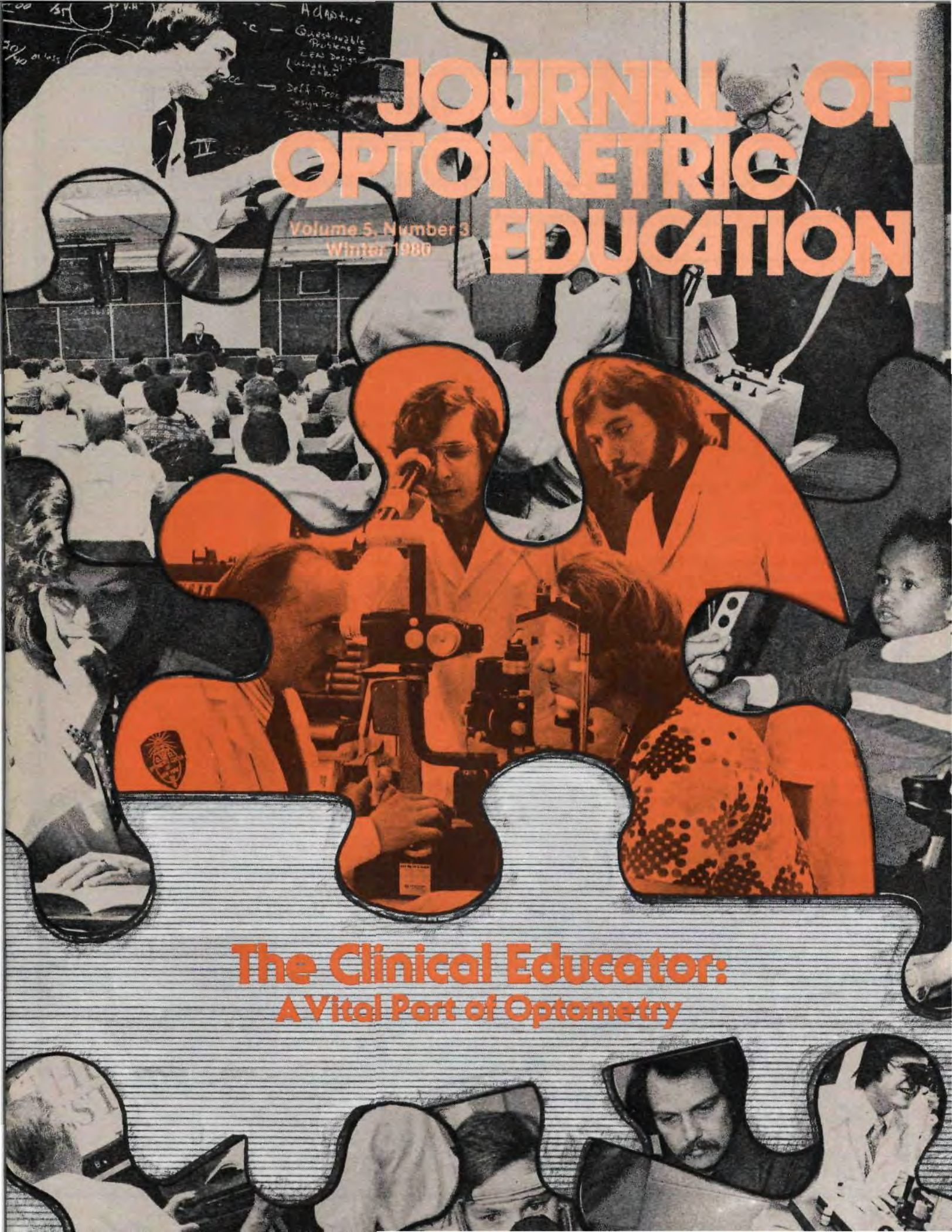

JOURNAL OF OPTOMETRIC EDUCATION

Volume 5, Number 3
Winter 1980

The Clinical Educator:
A Vital Part of Optometry

ASSOCIATION of SCHOOLS and COLLEGES of OPTOMETRY

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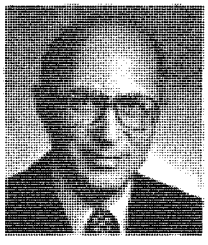

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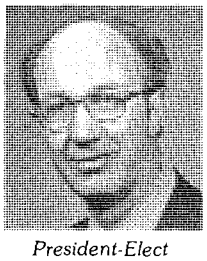

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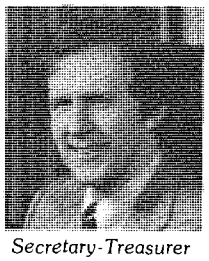

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Table of Contents
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JOURNAL OF OPTOMETRIC EDUCATION

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DEPARTMENTS

The **JOURNAL OF OPTOMETRIC EDUCATION** is published by the Association of Schools and Colleges of Optometry (ASCO). **Managing Editor:** Harriet E. Long. **Art Director:** Dan Hildt, Graphics in General. Business and editorial offices are located at 1730 M Street, N.W., Suite 210, Washington, D.C. 20036. **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. Advertising rates are available upon request.

NEEDED:

A Coalition of Clinicians

The essence of this editorial is a plea to the profession to review the relationship between teaching clinicians and private practitioners. I am speaking as a private practitioner turned faculty member involved in clinical optometry instruction, who has just returned to private practice. The opportunity to observe the relationships between teaching clinicians and private practitioners has been very informative, providing insight into some of our common problems. I would like to share some of my impressions and extend a plea to all clinicians of our profession to work together for our collective benefit.

The growth and vitality of optometry would be substantially enhanced by the development of an intimate professional relationship and a free exchange of ideas between these two groups. Such a relationship would increase input into the educational process by individuals in the field, permit more rapid implementation of new techniques by private practitioners, improve our continuing education courses as well as the philosophical understanding between practitioners and educators, and strengthen rapport among the entire profession. When we as optometrists have so much to gain by heightening the sensitivities among members of the profession, it is natural to ask why it has taken so long to recognize the need?

To better understand our future and to place the problems we face in proper perspective, we must review our history. Optometry evolved to fill a need that was not being satisfied by medicine or opticianary. Optometry emerged as a profession when early leaders began to stress education, revision of practice standards and assumption of the role as health care practitioners, and has continued to grow and develop at a rapid rate.

As we review our history, it becomes evident one of our significant successes was the upgrading of our educational systems and standards. Unfortunately, there now appears to be excessive resistance to continued updating and change. Thus one of our past major accomplishments is currently impeding our continued growth.

To put this problem in perspective, we must review the mechanism optometry employed to upgrade its educational systems. When our leaders promoted the change from proprietary schools to non-profit, private and university-affiliated colleges, it was crucial to integrate optometry into the typical academic model. This was vital to gain university status and recognition by the academic community. Unfortunately, optometry chose not to negotiate entrance into the academic health center systems. The leaders accurately evaluated our position and correctly elected to emphasize a strong visual science approach within the optometric curriculum. Furthermore, those individuals within the profession who developed an interest in optometric education were encouraged to pursue graduate training in physiological optics with an emphasis on the visual science approach. By following this format optometry gained significant respect and acceptability in the scholarly community.

Dramatic changes have occurred in our profession, however, in the past five to ten years. The emergence of optometry as a primary health care discipline and the legislative amendments affecting our practice acts have radically altered the role of the optometrist in today's world. We are rapidly approaching, or perhaps have surpassed the level of responsibility in patient care that our institutions are preparing our students to accept.

This crucial issue demands our collective immediate attention. If a coalition of clinically sensitive individuals from the educational institutions and from private practice begin dialogues on this problem, the solution will come and be implemented in time.

Since optometry adopted the "academic model" for its educational program and because career advancement was primarily dependent on the acquisition of additional academic degrees, the leadership group in optometric education contained almost exclusively individuals who were primarily trained in the academic model. As a result, administrators, department chairmen and clinic supervisors were most frequently non-clinicians. That is not to suggest that they had no clinical experience, but that, by and large, they represented a concept of clinical

EDITORIAL

optometry that may not remotely resemble clinical optometry as we presently perceive it in a primary eye care model. One of the difficulties, then, that clinical faculty confront today at many of our educational institutions is gaining the attention and support of the administration to upgrade and implement clinical training compatible with the needs of primary eye care. It is imperative that the private practitioner voice these needs.

The time is past when we as optometrists should tolerate the imbalance in our optometric curricula. Optometry is a *clinical* science, not an academic treatise on physiological optics. While we must maintain or even increase our understanding of the basic health sciences as well as the visual science, we have the right as clinicians to demand clinical relevance. We must remember that our educational process must provide a clinician prepared to practice clinical eye and vision care. If all members of our profession voice these needs to the administrators of our institutions, we can evoke change.

As former students we almost all share a common complaint, i.e. why all the irrelevant emphasis and unnecessary time allotted to physiological optics. The problem is not a new one. With the present expansion of the role of optometry and curricula time so limited, we must address the priority areas with the greatest attention. Therefore, I elicit your support for the revision of our programs and provision of the emphasis where it rightfully belongs.

The individual in optometric education who is committed to teaching, but is clinically motivated, is the most valuable commodity in optometry today. Without scientifically sound, objective clinicians who are skilled at patient care and teaching we have little hope of achieving our goal as primary eye and vision care practitioners.

In the interest of equal time, I am going to make some suggestions as to how the teaching clinician might offer support and assistance to the private practitioner. The demands of private practice are severe in terms of time commitment, both in the office and in the community. As a result, the busy clinician finds it very difficult to maintain or upgrade skills in areas of lower prevalence. Since human nature prefers the most comfortable route, many clinicians hesitate treading in foreign areas. Thus, practice habits tend to become staid and confined. Mini-residencies aimed at updating the practitioner to newer techniques in patient care would be immeasurably valuable. The logistics of these short-term residencies might be a little difficult, but certainly not impossible, and they would dramatically assist the practitioners.

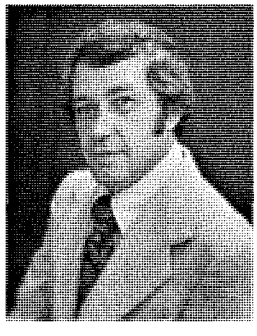
Another area of concern for the private practitioner is continuing education. The primary responsibility of the private clinician is the amelioration of patients' problems and the fiscal responsibilities of maintaining a private practice. Not infrequently, however, lecturers address an area that has low yield and requires exorbitant investment for instrumentation by the practitioner. This doesn't mean that areas of low incidence/high investment should never be discussed, but educators should strive for a better balance.

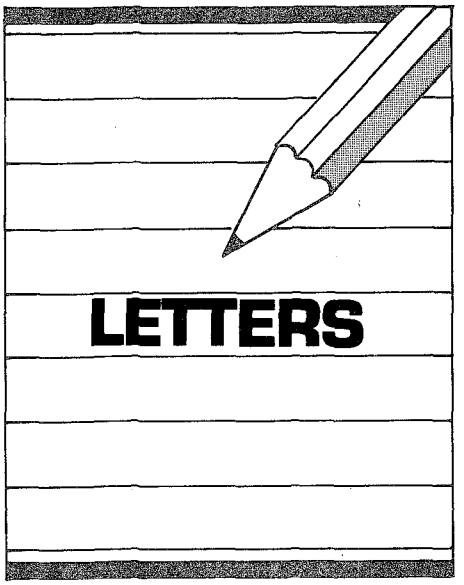
The teaching clinician would also do well to remember that as a practicing clinician the only commodities one has to sell are time and solutions. Education directed to arriving at the proper diagnosis in the least amount of time is mandatory. In fact, all optometric education should be directed towards a problem-solving approach, which guides the clinician in the most direct path to the correct solution.

After enumeration of the problems confronting optometric clinicians in both education and the private sector, I sincerely hope the reader arrives at the same conclusions I have after professional involvement in both areas. The problems and solutions are similar, and by increasing dialogue and implementing mutual support, a beneficial coalition can be formed. The results of this clinical coalition could completely restructure our educational systems to the benefit of all. Optometry is only as strong as the clinicians in the field, and they, in turn, are the direct responsibility of their clinical mentors. Let us work together to upgrade and expand our profession and the service we offer our patients.

Allen J. Blume, O.D.

Allen J. Blume, O.D.
Mason City, Iowa





Dear Dr. Classé:

Your article expresses a concern for a subject which deserves far more notice by our educators and the ultra-professionals in our midst. For reasons which are far out-dated—in fact which probably were never good nor sensible reasons to begin with—learning to make a living in optometry has been frowned upon by our schools, by our state boards and by the Academy of Optometry. As a general rule—just as you've pointed out—courses in practice management usually are not acceptable for continuing education credit and, even worse, regularly are rejected by the Academy in favor of courses which sound professional but which may do very little to help optometrists survive as independent practitioners.

Why optometrists do not refer patients to optometrists is not a mystery: most of their referred patients are frank pathology problems. But possibly more important is the fact that optometrists rarely have enough patients to feel secure in referrals which they can handle, even poorly. They do not want to lose any patients to other O.D.'s.

As you may realize, optometry is one of the minority professions which has no economic/governmental/social "referral team." When the public needs health advice, including care of their eyes, they can start at the local level—school nurse, school teacher, family physician, dentist, pharmacist, lawyer or any other readily accessible individual. And, since these people have gone to school with, have grown up with, have come from homes which have, have read material which suggests, and generally have learned to associate health care and eye care with medicine and ophthalmology, the normal expected referral is to the ophthalmologist.

At somewhat higher levels—city government, state government or federal government—the Health Department or the Surgeon General's office will suggest their family physician's advice or will advise them directly to see an ophthalmologist. To my knowledge, few O.D.'s are represented in the Surgeon General's department nor in any other "health" department on a local, state or national level.

The optometrist's referral team is made up of his own patients. And, to combat this, local and national commercial groups in opticianry and optometry have been bombarding the public via printed and air wave materials with seemingly sound reasons why private optometric practitioners charge far too much for a job which the large chain "optometrist-opticians" do better. Organized, professional optometry continues to play into the hands of such "outsiders" by pointing out that almost any effort on the part of the individual O.D. to promote himself is an unprofessional act.

"Personal" public relations or promotion is probably as important or more important than any other aspect of optometric practice management. It can, in addition to helping the individual O.D., also help optometry generally if it is sufficiently pervasive in the community. Consider for a moment what could happen if every O.D. were to blanket his patients with a personal letter explaining some accomplishment of his own or of optometry's in the eye care field. But, such a procedure has not always been well accepted by O.D.'s or their professional associations.

And, there are a multitude of other reasonably simple things which optometrists must be taught to do, but only after they have been promised that such personal promotions will not keep them out of the AOA or the Academy. As a general rule, "group" promotions have failed for a number of reasons and probably are not worth considering unless someone has a better way to do it than has been used in the past.

Optometry has survived some rather serious problems during my 35 years in this field—but, today's problems with ophthalmology and commercial optometry-opticianry are much more serious than they've ever been before. I believe we've got to change our past poor habits of thought and direction. Your article has made a good start in this direction.

Neal J. Bailey, O.D., Ph.D.
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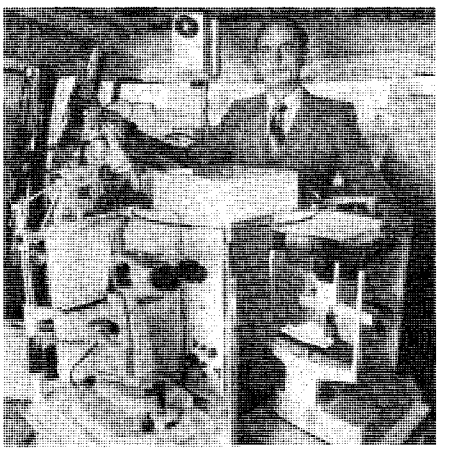

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ASSOCIATION ACTIVITIES & BOARD BRIEFS

The following briefs report the highlights of the meetings of the Association in October in Washington, D.C., and the Executive Committee session held at Anaheim in December, 1979.

Board of Directors Meeting October 11-13, 1979 Washington, D.C.

An extensive agenda on a wide range of subjects was undertaken by the Board of Directors at its meeting in October.

As a result of previous discussion, the question of the appropriate organizational placement of optometry in the V.A. Division of Academic Affairs was given significant attention. Two presentations were provided by staff of the Veterans Administration to highlight the issue, describe the functional and funding circumstances, and to discuss the possible advantages and disadvantages of the option. The Board expressed its desire to further pursue the subject and recommended the establishment of an ASCO advisory group to the V.A. Academic Affairs Division to continue to study the question. ASCO has undertaken to develop this liaison.

With the expiration of the Health Professions Educational Assistance Act on September 30, 1980, the Congress will be considering new health manpower legislation when the Congress reconvenes in January. Dr. Robert Knouss, Professional Staff Member, Senate Subcommittee on Health and Scientific Research, chaired by Senator Kennedy, was invited to address the Board. Dr. Knouss shared the achievements of the present legislation, its shortcomings and the perceived national needs for the future. Following a lively discussion and question-and-answer session, Dr. Knouss invited ASCO to submit its thoughts on the future of health manpower legislation. Dr. Henry Peters, UAB, was appointed to draft a position paper for review and comment by the Board and ultimate submission to the Committee and other members of Congress for consideration.

Dr. A. Nancy Avakian, Assistant Vice Chancellor, University of Missouri at St. Louis, was present at the meeting. Dr. Avakian is currently representing the University in its development of the new School of Optometry which will enter its first class of students in the fall of 1980. Dr. Avakian reported on the progress to date and was given every assurance of the support of ASCO and available assistance in her efforts from the member institutions. She reported that the Dean search was nearly completed and that the selection should be made before the end of the year.

A proposal to establish a commission to study and report on the future of optometry and optometric education was discussed. This would represent a study comparable to that conducted in 1972 by Dr. Havighurst. Approval was given to continue to consider the need, feasibility and possible funding of such an effort and a resolution was approved to urge the AOA to appoint members to a joint committee for this purpose.

Also meeting with the Board and briefing them on matters of interest were Dr. Tim Kime, AOA Liaison Trustee to ASCO; Dr. James Blumenthal, Chairman, College of Optometrists in Vision Development; and Dr. Robert Dundass, Chairman, Council on Clinical Optometric Care.

It was reported that American Optical Corporation has established an optometric scholarship program in the amount of $13,000, administered by the American Optometric Foundation. Action by the ASCO Board advises AOF that each school should receive a $1,000 annual scholarship.

Executive Committee Meeting December 11-12, 1979 Anaheim, California

Following the meeting of the American Academy of Optometry in Anaheim, the Executive Committee of ASCO held a day-and-a-half meeting to conduct additional Association business. Of significant note were the following agenda items and decisions.

The President of the National Board of Examiners in Optometry, Dr. James Gaustad, attended the meeting and provided an update on the reorganization and programs of the NBEO. He announced that five candidates for the position of Executive Director have been interviewed and a selection would be announced shortly. Dr. Gaustad encouraged the Association to establish a liaison committee to NBEO to ensure timely attention to problems and provide direct advice and counsel. ASCO agreed to act on that request.

It was announced that the ASCO issues concerning federal health manpower legislation have been completed and submitted to both the Senate and House committees for consideration. Special note of appreciation was extended to Dr. Henry Peters for his leadership in developing the staff paper.

A joint meeting of the American Optometric Association Board of Trustees and the Association of Schools and Colleges of Optometry Board of Directors was announced. The meeting will address subjects of mutual concern. The Executive Committee agreed to a list of subjects for that agenda.

Dr. Rosenbloom, ASCO President, presented a resolution from the American Academy of Optometry requesting the cooperation of ASCO in developing a proposal for a grant to hold a workshop to identify and amplify the research needs in vision for optometry. The Executive Committee enthusiastically endorsed the resolution and appointed Dr. Jerry Christensen, UAB, and Dr. Robert Yolton, PU, to represent ASCO in the effort.

SYMPOSIUM:

The Role of Biological Sciences in the Optometric Curriculum

Presented before The American Academy of Optometry
Boston, Massachusetts, December 1978

Introductory Remarks by Jerry Rapp, Ph.D.

The purpose of teaching biological sciences in the optometric curriculum is to provide the student with a thorough understanding of human physiology. This knowledge is vital to the present-day optometrist as a result of:

1. The role of the optometrist as a primary health care practitioner with concomitant responsibility for a complete understanding of systemic as well as ocular health care.

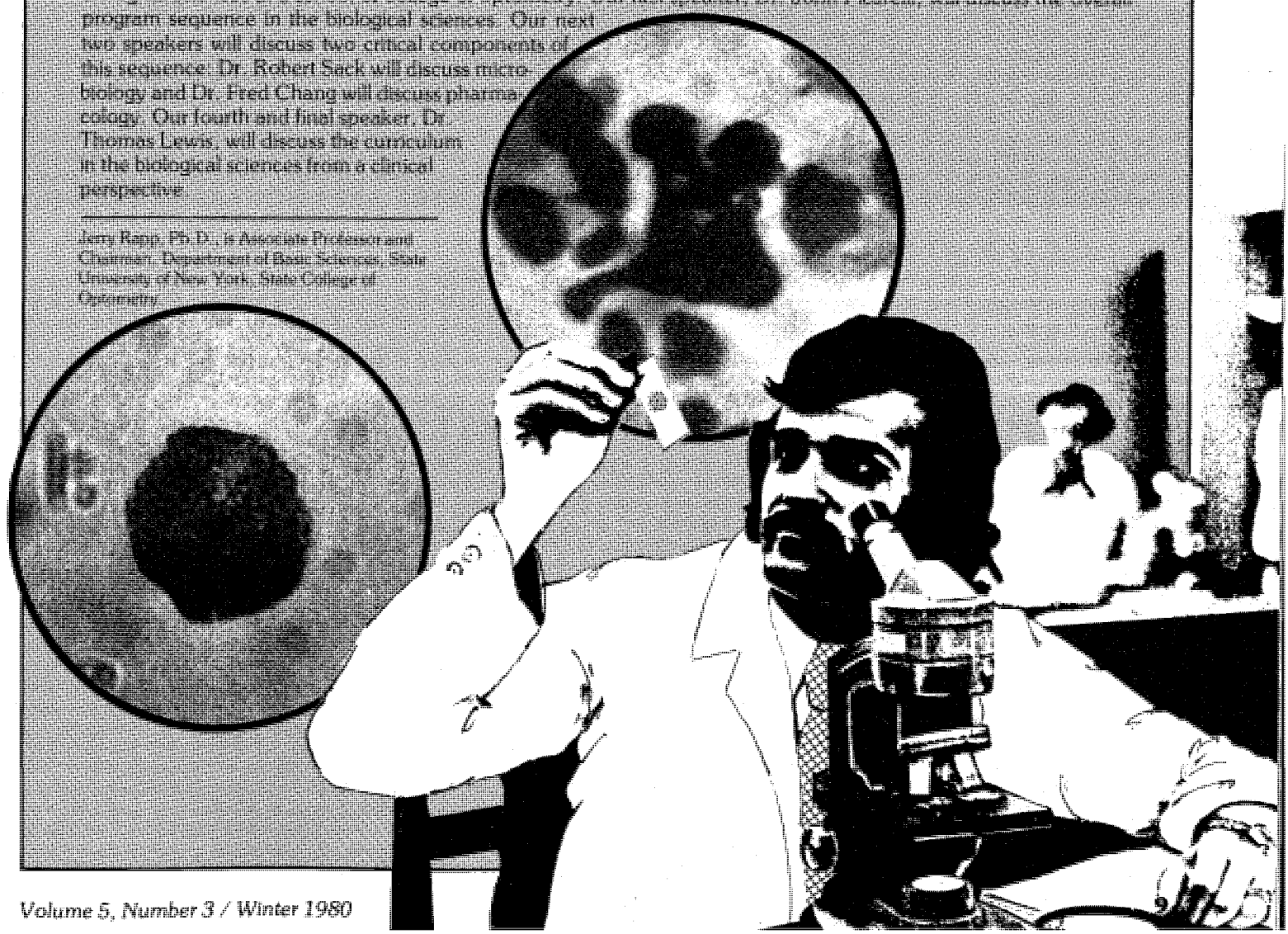
2. The increasing use of diagnostic and therapeutic drugs in optometric practice.

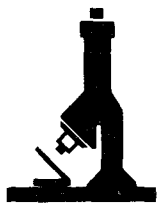
3. The necessity for an optometrist to be able to converse intelligently with other health care providers concerning a patient's health.

4. The requirement that an optometrist be able to intelligently advise his or her own patient regarding matters of systemic and/or ocular health care.

We organized this symposium with a view towards probing some of the curricular elements of the program in biological sciences at a school or college of optometry. Our first speaker, Dr. John Picarelli, will discuss the overall program sequence in the biological sciences. Our next two speakers will discuss two critical components of this sequence: Dr. Robert Sack will discuss microbiology and Dr. Fred Chang will discuss pharmacology. Our fourth and final speaker, Dr. Thomas Lewis, will discuss the curriculum in the biological sciences from a clinical perspective.

Jerry Rapp, Ph.D., is Associate Professor and Chairman, Department of Basic Sciences, State University of New York, State College of Optometry.





An Overview

John J. Picarelli, Ph.D.

The program in basic health sciences has two general goals in the optometric curriculum in order to prepare the student to carry out the aims and responsibilities of the Optometric Profession:

1. To impart to the optometry student specific bio-physiological knowledge of the human organism with special emphasis on the visual system.

2. To provide the prerequisites for other courses in the optometric curriculum. Courses in basic science can generally be divided into two categories:

Catetory I — Basic Health Sciences
(1) Human Gross Anatomy*
(1) Human Histology*
(1) Neuroanatomy*
(1) Biochemistry*
(1) Human Physiology
(2) General Pathology*
(2) Microbiology
(2) Pharmacology

Category II—Bio-Ocular Health Sciences
(3) Ocular Anatomy and Physiology*
(3) Ocular Pathology
(3) Ocular Microbiology
(3) Ocular Pharmacology
(3) Ocular Biochemistry

NB, Topics in embryology, genetics, genetic diseases, neurophysiology, and ocular vegetative physiology are integrated into the * courses or are given as separate courses.

The courses prefixed by (1) are truly "basic" in that they are fundamental in order for the student to progress from a basis of what is normal to the "abnormal" in the body's structural-functional relationship. Thus, in order for the student to understand pathology, microbiology and pharmacology, there must be a firm understanding of human anatomy, biochemistry and physiology. One cannot logically evaluate the abnormal condition unless one *knows and understands* the normal condition.

The courses listed in category I are in turn prerequisite for the courses in category II. The student progresses from courses that deal with the workings of the human body to those that deal with the workings of the visual system. More importantly the student is made aware that the eye is not isolated from the body, but is an integral part and is affected by other systems of the body.

The program in basic sciences, as described above, prepares the student of optometry for both the extrinsic and intrinsic aspects of the profession of optometry. The extrinsic areas of optometric responsibilities are demonstrated by the working definition of an optometrist and role of the optometrist as presented by ASCO (1). The intrinsic aspects of the practice of optometry are difficult to define. It involves the attitude or philosophy of the individual optometrist, and how the optometrist relates to the patient.

The ASCO definition states that an optometrist has a double role to fulfill, i.e., the optometrist is a health care practitioner and a primary vision care provider:

> "An optometrist is a health care practitioner who participates as a member of the primary health care team in providing for comprehensive health care, health maintenance, and health education, and a primary vision care provider with the responsibility to prevent, detect, diagnose, treat, and/or manage visual and ocular problems, to enhance visual performance, and to provide vision and ocular health education and a continuing program of vision and ocular care." (1)

The overall objectives and goals of courses in basic science program should aid in the preparation of the students to fulfill this double role.

The ASCO report (1) lists three areas of responsibility of the optometrist: patient care, community health, and professional responsibilities. It is these responsibilities that serve as the nucleus for extrinsic aspects of the practice of optometry. I would like to expand on these responsibilities in order to show how basic science prepares the student to assume this role. They are as follows:

A. Patient care responsibilities:

1. "Knowledge and skill required to prevent, diagnose and manage refractive errors and ocular optical anomalies. 2. Knowledge and skill required to prevent, diagnose, and manage binocular problems of accommodation and convergence. 3. Knowledge and skill required to prevent, diagnose, and manage anomalous oculo-sensory and oculo-motor problems. 4. Knowledge and skill required to detect, evaluate, and manage ocular health problems and those systemic health problems that have visual and ocular manifestations. 5. Knowledge and skill required to screen for those general health problems which have high prevalence, significant morbidity, and/or mortality consequences, little or no symptomatic evidence, and for which effective early detection methods are available and for which early treatment is successful." (1)

Courses in the basic science program, as outlined above, provide the knowledge and skill needed to meet the above responsibilities.

B. Community Health Responsibilities:

1. "Knowledge and skill required to provide general health education and to counsel patients concerning preventive health care practices. 2. Knowledge and skill required to provide ocular and vision health education to other health care providers and to the public." (1)

In order to provide general health education to the public and other health care providers, the student must be versed in anatomy, biochemistry, physiology and general microbiology and pathology.

The courses listed in category II are required to meet the responsibility of educating and communicating to other health professionals. In comparison with optometry most physicians have very little formal training in the biophysiological aspects of the visual system. The general public has a need and a right to know more about visual health, and the optometrist, with the appropriate background and education can provide this service.

C. Professional Responsibilities:

1. "Understanding and appreciation of the need for research and the need to participate in optometric continuing education." (1)

This area is a gray area in my classification, in that I would consider this to be both extrinsic and intrinsic to the practice of optometry. In order for any pro-

John J. Picarelli, Ph.D., is Associate Professor of Basic Sciences, State University of New York, State College of Optometry.

fession to grow it must be open to new ideas. Optometry needs to encourage research in order to progress as a profession. Thus the optometry student should be exposed both passively and actively to all phases (basic and clinical) of optometric research. One does not need to be a researcher to be a good optometrist, but there has to be optometric research in order for optometry to meet its responsibility as a health care profession and primary vision care provider. Research insures that the profession will evolve and that vision care will improve.

The intrinsic aspects of the practice of optometry are difficult to define. This involves the attitude or philosophy of the individual optometrist, and how the optometrist relates to the patient. In optometric education this is described as the affective domain. (2)

One of the attitudes of basic sciences that should be instilled in the optometric student is an appreciation for and the ability to employ the scientific method in the practice of optometry.

The use of the scientific method as an approach to the diagnosis and treatment of patients is not new—it was first advanced by Flexner in 1910 (3). In using the scientific method, a scientist is confronted by a definite situation, he/she makes observations, collects data, and this suggests a line of action. From this, the scientist constructs an hypothesis and designs an experiment to test the hypothesis. The practical outcome of this experiment confirms, rejects or modifies the scientist's hypothesis.

How is the scientific method applicable to optometry? The optometrist is confronted by a definite situation. He or she must collect and analyze data (general and ocular health history, optometric findings). From this data, the optometrist must construct a working hypothesis (diagnosis) and then act upon it.

Flexner was not concerned that the students learn a technique but an attitude, one skeptical of fixed knowledge and prescribed procedures, but an attitude ready for the new, different and unusual.

In conclusion, the thrust of the program in basic sciences, is to give to the student the knowledge, understanding and skill required to provide optometric care, not just to a pair of eyes, but to provide optometric care in terms of the individual's total health and performance. □

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Microbiology

Robert Sack, Ph.D.

To approach the question of how microbiology fits into the optometric curriculum let us review which particular skills and what areas of knowledge our graduates must master in order to provide superior eye care, and how microbiology relates to this body of knowledge.

Obviously we expect our students in their practice to maintain sanitary and aseptic procedures in their examinations and in their maintenance of office equipment. This responsibility is paramount. Failure to do so has been associated with epidemics of adenoviral conjunctivitis (isolated, more serious problems have arisen through contamination of ophthalmic solutions with bacteria. In particular, Pseudomonas). The practitioner also has the responsibility to motivate and instruct his patients with regard to the proper maintenance of contact lenses and lens solutions. This becomes increasingly important as a greater proportion of the population takes advantage of contact lenses.

In addition, the optometrist must be able to identify ocular pathologies, including those infectious diseases with ocular manifestations and know when and where to refer these patients. This requires knowledge of differential diagnosis, etiology. prognosis and therapy for a number of infectious diseases.

In some rural areas immediate ophthalmological referral is impractical. In these instances rapid therapy of pathologies, such as bacterial corneal infection, can have a significant effect on the ultimate visual function of the patient. Also, some patients may exhibit minor red-eye syndromes where ophthalmological treatment is not practical during the time course of the inflammation. In West Virginia these problems are recognized and the health needs of its citizens are served by optometrists' use of therapeutic drugs. If this is a trend, we must fully prepare our students to serve as primary ocular health care practitioners, screening and referring those patients who need ophthalmological care and/or instituting appropriate therapy.

Lastly, it is not unreasonable to expect our graduates to have a broad background so they can communicate intelligently with other health professionals and appreciate mankind's increasing understanding of the function of the visual system.

To meet these demands optometric education has undergone marked change. Let me refer to the curriculum at SUNY, College of Optometry, as just one example of how "Microbiology" is presented within this framework.

Microbiology is taught at the end of the student's second year, after he has received an appropriate background in biochemistry, physiology, anatomy, neuroanatomy, histology, ocular anatomy, ocular physiology and ocular biochemistry and general pathology. It is presented prior to a sequence of courses in ocular pathology, clinic and ocular pharmacology. It is given simultaneously with general pharmacology. The course starts with a 12 hour lecture and laboratory sequence designed to acquaint the student with the physiology, culture, morphology and identification of microorganisms. While a prior undergraduate microbiology course is helpful, the course material does not put the student without such preparation at a major disadvantage.

Next we build upon information previously presented in general pathology and physiology. The inflammatory and immune systems are reviewed from both a systemic and ocular viewpoint as they relate to infectious and immunological diseases. Host-pathogen interactions are stressed and specific examples of acute, chronic, immunological and slow diseases are discussed as models.

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The objective of this presentation is to develop a background through which the student can utilize and understand ocular inflammation as presented later in ocular pathology courses and as seen in the clinic. To supplement text material, review articles in the ophthalmological and optometric literature are used. This reinforces a habit we hope the student will take with him into practice, that of constant referral to professional journals. The student should, at the end of this sequence, be able to read, understand and evaluate medical texts and journal articles dealing with infectious diseases.

Developing an understanding of the function and use of antimicrobial and antimetabolic drugs is a responsibility which is shared by the microbiology, pharmacology, pathology and clinical tracks of our educational program. In microbiology, the chemistry, mode of action, drug-pathogen interactions and the spectrum of activity of all major classes of antimicrobials and antimetabolites are thoroughly discussed. More detailed practical considerations, such as dosage, toxicology, mode of delivery, excretion, are presented in general and ocular pharmacology and pathology. Information presented in prior courses in the biosciences is a prerequisite to explaining drug action. For example, students can appreciate the mode of action and therapeutic limitations of sulfonamides only if they are aware of folic acid and amino acid metabolism, inhibition kinetics, renal function, acid-base balance, ionization, solubility, and bacterial physiology. The program does not aim at simple memorization of facts. Students are expected to utilize concepts to develop and extract new information. It is felt that this will prepare the student best to understand and keep up with the rapidly changing field of chemotherapy.

With the exception of the red-eye syndrome, discussion of practical ocular pathology and therapeutics is deferred to the ocular pathology course. Students use a self-study audiovisual program to learn differential diagnosis and treatment of bacterial, viral and allergic conjunctivitis. They later discuss this material with members of the pathology staff. This clinically important material is presented at this point to reinforce the practical application of microbiology to the student's future practice.

In the laboratory, students are taught how to take an ocular culture, how to identify potential pathogens from the mixed ocular culture and how to carry out antibiotic sensitivity testing. The student learns that cultures are routinely taken from patients in the pathology clinic. Pathogens are identified in a functional microbiological laboratory which is maintained with tight quality control. In instances where a dangerous pathogen is isolated, identification is confirmed by sending a second culture to a commercial laboratory. We are thus able to monitor agents responsible for bacterial conjunctivitis in our clinic and can provide useful and even critical feedback to the clinician. To illustrate this, Figure I depicts those organisms which have been isolated from ocular cultures of patients with ocular inflammations. Although most pathogens were readily controlled by ophthalmic ointment some fungal and serious bacterial pathogens have also been isolated. (i.e., in two instances pseudomonas was found which allowed rapid communication with the clinician of the potential danger.) The student also learns to take a histological smear which may aid in differential diagnosis. The limitations of these techniques are stressed, but the skills employed in microbiology and in the pathology clinic are designed to be carried into practice.

Fig. I
Microorganisms recovered from eye cultures

Stophylococcus epidermidis	200
Diphtheroids	59
Staphylococcus aureus	48
Alpha-hemolytic streptococci	31
Staphylococcus sp.	27
Gram-Negative "enteric" rods	22
Gamma-hemolytic streptococci	21
Pseudomonas	2
Neisseria sp.	17
Streptocossus pneumoniae	16
Hemophilus sp.	6
Yeasts (not *Candida albicans)*	5
Filamentous fungi	3
Aerobic actinomycetes (probably *Nocardia asteroids)*	2
Beta-hemolytic streptococci, Group A	2
Beta-hemolytic streptococci, Not Group A	1
Peptococcus sp. (anaerobic)	1
Bacillus sp.	1
Other (unidentified)	1

Viruses are discussed in terms of their modes of action, life cycles, and their involvement in a broad range of pathologies including immune diseases, cancer, recurrent and acute infections. Chemotherapeutic control of herpes infections is detailed from both the practical and experimental points of view. The didactic development of this material relies upon prior knowledge of molecular biology presented in the first year bioscience sequence.

The theoretical and practical principles of sterilization and asepsis as well as the principles and nature of common preservative agents are presented. Demonstrations of use of procedures such as ultra filters reinforce the learning processes. When the student later enters the clinical sequence he or she is now ready to learn and appreciate the need to follow proper clinical sanitary procedures. When the student discusses ophthalmical solutions in ocular pharmacology he is also able to appreciate the practical applications of these procedures.

As the full scope of optometry unfolds, our curricula will undoubtedly be modified to capitalize even further upon microbiology's contribution. □

Pharmacology

Freddy W. Chang, O.D., Ph.D.

The role of pharmacology in an optometric curriculum can be reviewed from three aspects: A) applied; B) interprofessional; C) licensure requirements.

A) Applied aspect

The applied aspect of pharmacology in an optometric curriculum relates to the area of clinical application of pharmaceutical knowledge in optometric practice such as 1) knowledge of adverse ocular and other side effects of drugs; 2) the use of drugs for diagnostic purposes; 3) the use of chemotherapeutic agents.

1) The eye is considered to be a sensitive indicator of many changes which occur in other parts of the body. As the use of drugs becomes more wide-

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spread, an increasing number of toxic effects are recognized. Since certain drugs and drug interactions are known to produce changes in refractive error, contact lens comfort and efficiency and ocular tissue integrity, it is essential that the optometrist be knowledgeable in understanding and recognizing such ocular manifestations.

The following is a list of ocular structures which are known to manifest adverse effects of drugs.

(a) *Conjunctiva.* Epinephrine therapy could result in pigmentation of the conjunctiva. Silver nitrate application can produce argyrosis. Diphenylhydantoin therapy may produce an allergic conjunctivitis. Parasympatholytics or antihistamines tend to cause a reduction in the tear secretion which may affect the wearing of contact lenses.

(b) *Cornea.* Steroid therapy may cause corneal edema and exacerbate viral infections. Chloroquine therapy or gold salts may cause corneal deposits.

(c) *Crystalline lens.* Sulfonamides and diuretic therapy sometimes induce myopia. Chronic steroid therapy or the use of phenmetrazine may produce posterior subcapsular cataract. Sodium cyanate, phenothiazines or allopurinol therapy can also result in cataracts.

(d) *Retina.* Chloroquine or thioridazine (Mellaril®) therapy may produce typical forms of retinopathy.

(e) *Optic nerve.* Chloramphenicol, amitriptyline, estrogens, tryparsamide or tamoxifen therapy may result in optic neuritis. Ethambutol, isoniazid, glutethimide, sodium salicylate or oral contraceptives may produce papilledema.

2) In many U.S. states and other jurisdictions optometrists have earned the right and accepted the responsibility of using drugs for diagnostic purposes in the practice of optometry. Numbers of optometrists are providing vision care in public health clinics, hospitals and Veterans Administration centers where the use of diagnostic drugs has been a recognized procedure for a long time.

3) In West Virginia and North Carolina, optometrists are authorized to use pharmaceutical agents for therapeutic purposes.

B) Interprofessional aspect

The welfare of the patient must always be considered as the object of diagnostic and therapeutic care. Since chemotherapy is widely used in health care, it is essential that optometrists be capable of understanding, recognizing, referring and discussing such therapy with other health care professionals.

C) Licensure requirements

In order to comply with state and other licensure requirements as well as to keep pace with advances in knowledge, it is necessary to continuously improve the program in pharmacology in the optometric curriculum. With regard to the toxic effects produced by systemically administered drugs it is essential that their mechanisms of action and the indications or contraindications for their use be understood. There are two reasons for this. 1) Many patients are not aware of or do not recall the names of the drugs they are using, but are able to relate to the optometrist what condition is being treated. 2) When the optometrist is aware of the condition under treatment, he can anticipate what groups of drugs are likely to be used, and the types of unwanted reactions which are likely to occur. In order to prepare optometrists to use pharmaceutical agents, both for diagnostic and therapeutic purposes, it is imperative that students in the optometric courses learn the actions, indications, contraindications, precautions, potential interactions, adverse side effects and dosage of the agents commonly employed for diagnostic and therapeutic purposes. It is necessary to understand all these factors in order to use pharmaceutical agents intelligently and effectively.

To achieve this goal it became necessary to include more pharmacology in the optometric curriculum. The pharmacology instruction in the optometric program at Indiana University consists of 6 semester hours of pharmacology which is made up of 3 semester hours of General Pharmacology and 3 semester hours of Ocular Pharmacology (total 96 hours) plus 2 years experience in the clinical use of these drugs in the outpatient clinics. The topics discussed in the general pharmacology program are: general pharmacology; principles of pharmacology; autonomic nervous system; parasympathetic nervous system, sympathetic nervous system; ganglion blockers; diuretics; cardiovascular drugs; local anesthetics and non-narcotic analgesics; endocrine drugs (hormones); central nervous system drugs; drug abuse (narcotic analgesics); toxicology and drug-drug interactions; chemotherapy; antibiotics, antibacterials, antiviral, antifungal, antiprotozoan agents.

These classes of drugs are discussed with reference to their mechanism of action, structure-activity relationships, absorption, distribution, excretion and metabolism, clinical indications; and adverse side effects.

Ocular pharmacology includes pharmacodynamics; cycloplegics; mydriatics; miotics; osmotic agents; local anesthetics; therapy for glaucoma; ocular chemotherapy including antibiotics, antibacterials, antivirals, antifungals, corticosteroids. Adverse effects and side effects of ocular and systemic medications. These drugs are discussed in terms of their actions, indications, contraindications, precautions, adverse and side effects and dosage.

As optometry assumes its full responsibilities as a primary health care profession, it is essential that curricula be maintained at a relevant level in all basic and specialized health care services, including pharmacology. □

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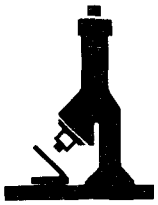

The Clinical Perspective

Thomas L. Lewis, O.D., Ph.D.

The justification for teaching any given body of knowledge in a curriculum designed for potential health care providers is that the knowledge will contribute to the provider's ability to deliver quality health care. Therefore, the true role of biological sciences must be determined by analyzing the contribution of this knowledge base to the clinical practice of optometry.

In order to analyze the contributions of biological sciences to the practice of optometry, the following premises are assumed: (a) optometry is a health care profession; (b) optometrists function as integral members of the health care delivery team, most often in the role of vision specialists; and, (c) the paramount goal of any health care provider is to solve patients' problems.

With the profession of optometry advancing toward primary and comprehensive delivery of quality vision care, it seems imperative that, as in other health care disciplines, basic health sciences be the cornerstone of optometry, ergo the cornerstone of the optometric curriculum. Primary health care providers must have as broad a knowledge base as possible to be able to address most people's problems most of the time.

The optometric student must receive an academic background in both general and systemic biological mechanisms, and more specifically, in normal and abnormal anatomy, biochemistry, physiology, microbiology and pharmacology of the eye. With this awareness of normal and abnormal functioning of the body, the optometrist can relate both systemic and ocular abnormalities to the visual needs of the public, interact with other health care professions in the best health interest of the public, and command the knowledge to assess high incidence of systemic diseases.

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Table 1.

TOPICS	INTEGRATION	CLINICAL CORRELATES
I Retina Coloboma Retinoblastoma Albinism Retrolental Fibroplasia Heredomacular Dystrophies Hereditary Optic Nerve Atrophy Prog. Night Blinding Anomalies (Retinitis Pigmentosa)	Gross: Sensory Pathways Micro: Receptors Glial Tissue Neurons: Synapses Blood Vessels	Ophthalmoscopy Direct Indirect Color Vision Macular Integrity ERG Low Vision Electronystagmometry
II Visual Pathway *Hereditary Optic Atrophy* Albinism Cerebral Palsy	Electrophysiology Light-Deprivation Phenom.	Visual Fields VER Amblyopia
III Lens Developmental Diseases Syndromes ex. intrauterine infections Uniocular Developmental Defects	Biochemistry	Biomicroscopy Cataract Theories
IV Cornea Keratoconus Corneal Dystrophies	Micro: Connective Tissue Epithelium	Biomicroscopy Keratometry C.L. Fitting Collagen Diseases
V Sclera	Micro: Connective Tissue	Collagen Diseases Refractive Error Theories
VI Uvea a. Choroid Night-Blinding Anomalies— Choroideremia b. Ciliary Body c. Iris (Pupil) Aniridia Coloboma Heterochromia	Micro: Smooth Muscle Blood Vessels Micro: Capillaries *Smooth Muscle* Pupillary Pathway	Fluorescein Angiography Accommodation Aqueous Production Pupil Reflexes Neuro-optometry Low Vision
VII Anterior Chamber Congenital Glaucoma Anterior Cleavage Syndrome		Gonioscopy
VIII Vitreous Origin Chronological History	Mucopolysaccharide Biochemistry	Biomicroscopy Ophthalmoscopy
IX Adnexa a. Extraocular Muscles Proprioception Nyoneural junctions Sensory endings *Developmental Diseases* Congenital paresis b. Conjunctiva c. Eyelids Congenital Ptosis d. Lacrimal Apparatus	Micro: Skeletal Muscle Smooth Muscles Receptors Micro: Epithelium Glands Micro: Skin Gross: Motor Pathways Micro: Glands	Ocular Motility Neuro-optometry Strabismus, etc. Biomicroscopy Externals Biomicroscopy Tear Analysis *Dry-Eye Syndromes* Contact Lenses

Sequencing, Integration, Correlation

The presentation of biological science courses serves two basic functions. First, the courses (Fig. 1, p. 15) serve as an educational foundation and/or knowledge base which other ocular biological, visual science and primary care optometry courses utilize. Secondly, basic biological facts and principles serve to explain the etiological basis of most clinical problems, either organic or functional in nature.

The effective presentation of these biological science courses require:

(a) *constant correlation of structure with function both for basic and ocular biological courses.*

(b) *a well-organized temporal integration of topic materials between the various biological courses which emphasizes the logical synthesis of basic biological principles.*

This integration minimizes the number of class hours necessary to present the material, eliminates undesired redundancy, and minimizes memorization of isolated minutiae while emphasizing the synthesis of basic principles with clinical correlates.

(c) *a conscious effort to emphasize the clinical correlates of biological sciences material at the time of its initial presentation in the curriculum.*

The clinical relevancy can be demonstrated immediately through planned clinical correlation lectures within a given course sequence and/or special clinical case conference, in a clinical setting. Both methods prove invaluable in modifying the behavior of the student early in his/her professional education to approach vision care with a keen

awareness of the inter-relationships of the entire body with ocular functions. In addition, these methods are the key to demonstrating the relevancy of biological sciences in a health care curriculum by minimizing memorization and emphasizing the biological basis of clinical problem solving.

(d) *a reinforcement of biological science principles, when appropriate, in all courses, especially in the clinical setting.*

There is no more effective method of reinforcing the biological basis of patients' problems than by utilizing these principles when discussing individual patients in a clinical setting.

An example which demonstrates the significance of integration and clinical correlation is outlined in Table 1. This outline represents topics that should be discussed in a comprehensive ocular development course.

This example of sequencing, integrating and emphasizing of clinical correlates in a course in ocular development can be expanded to all biological courses presented, and, for that matter, to the entire optometric curriculum.

Fig. 2 represents a model which can be used to demonstrate sequencing, integration and clinical correlation. In this model, sequencing and integration occur both horizontally and vertically while clinical correlations can be followed horizontally. This model represents only a few examples of the possible clinical correlates which develop from biological science courses.

The real difficulty in analyzing the impact of this model is the fact that it represents only one isolated segment of the optometric curriculum, biological sciences, without depicting the obvious inter-relationships of these courses with other major divisions or courses being presented concurrently.

Figure 1.

Structure
- Gross Human Anatomy
  - Head and Neck
  - Thorax, Abdomen, Cardiovascular
- Microanatomy
- Neuroanatomy

Function
- General Biochemistry
- General Physiology/Endocrinology

Abnormal Structure and Function
- General Pathology

Treatment of Abnormal Structure and Function
- General Pharmacology

Microbiology

Ocular Pharmacology

Ocular Microbiology

Ocular Biology
- Ocular Development/Genetics
- Ocular Anatomy
- Ocular Physiology/Biochemistry

This model is not intended to imply that all the listed clinical correlates have only biological bases, since it is obvious that all these correlates develop from material presented in a variety of segments in a optometric curriculum.

Conclusions

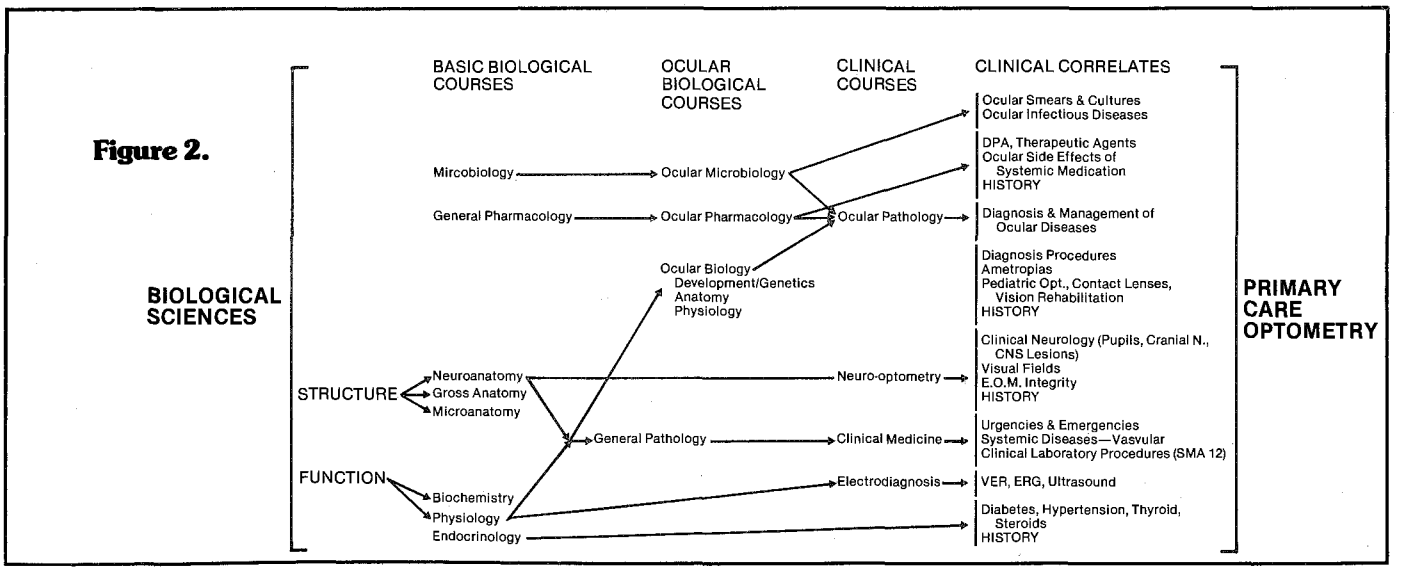
Biological sciences serve as a common denominator with respect to the knowledge base of all clinical health care professions. If optometry professes to be a primary clinical health care profession, and if optometrists want to become integral members of the health care team and deliver holistic vision care to their patients, then a curriculum strongly founded in biological sciences is essential.

Biological science courses are most effective in an optometric curriculum when the basic knowledge is integrated with clinical correlates as early as possible, and later reinforced in the clinical setting. Too often biological sciences have a connotation of only relating to normal and abnormal structure. This erroneous assumption is carried over in the clinical health care setting by assuming that only organic diseases have biological science bases.

It is important for optometrists to understand that almost all clinical problemt—organic, functional, psychological, and psycho-somatic—are etiologically related to some basic biological abnormality. Furthermore, there is a biological basis for all means of therapy utilized in optometry today. The biological basis may not be known at this time for all these optometric therapeutical measures, but that is true in any health care profession.

Since optometrists deal with visual problems of people we must relate visual problems to a functioning organism, and not view the eye as an entity divorced from its environment. This in no way implies that an optometrist must become a biochemist, or necessarily change the method of practice. But simply by understanding the functions of living tissue the optometrist may enhance the profession and reassure patients that the functional vision of people is an aspect of a living, breathing organism. The more successfully the organism functions, the more the individual can accomplish. □

Figure 2.



A Faculty Workshop on Clinical Instruction for Optometric Education

Introduction

As provided by the contract the Association of Schools and Colleges of Optometry (ASCO), planned, arranged and conducted a four-day meeting/workshop on optometric clinical education for clinical administrators and faculty from the fifteen schools and colleges of optometry in the United States and Canada. The meeting/workshop was held in Williamsburg, Virginia, on March 8-11, 1979.

A five-member Advisory Committee met to consider and advise regarding the major issues and questions upon which the meeting/workshop program should focus, the criteria for selection of the meeting participants, the methodology for evaluation of the workshop, and the alternative sites and dates for the workshop.

With due consideration to these and other recommendations, plans were developed for the issues to be covered and for the meeting format to be followed. The major discussion issues (covered in some detail later in this report) to be addressed were:

1. The objectives of present and future clinical education in the light of public needs and professional responsibilities;
2. The nature, type, extent and setting of clinical experience required to provide for present and future educational needs;
3. Methods and techniques appropriate to clinical education, responsibilities of clinical instruction; and
4. Evaluation of student performance and program effectiveness.

The meeting format consisted of a one to one and one-half hour presentation on each of the four topical areas, made to the entire group of participants by the adjunct faculty. Following each such session the participants divided into six workshop groups to discuss issues and questions related to the topic covered by the lecture presentation. Workshop sessions were followed by workshop reports of conclusions and recommendations presented to the entire participant group. After this process had been applied to all four issue areas, the workshop facilitators for each issue met to prepare a consensus draft report for presentation at the concluding general session.

The results of this process, topic by topic, as well as participant evaluation of the sessions are covered in the following sections of this report.

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ISSUE #1: The Objectives of Present and Future Clinical Education in the Light of Public Needs and Professional Responsibilities

Topic Outline

To develop instruction relevant to student needs, one must identify:

(a) the professional roles students will assume after completing their training;

(b) what constitutes effective performance within those roles.

The professional roles to be assumed vary widely and, in their totality, define optometry as it presently exists. They are also constantly changing under the impact of evolving societal needs, innovations in law and public policy, and technological development.

Optometric clinical education must be geared toward preparing students to fill future as well as present professional roles. It must be dynamic enough to reflect and incorporate change dictated by these impacting forces. Effective performance may be described as the most desirable or satisfactory execution of the responsibilities associated with a professional role, i.e. the ideal. But it may also be based on an analysis of actual professional performance in current practice. Educational objectives must be based on both criteria and reflect not only what the student should do but also what he/she will do.

Questions:

1. Can objectives be formulated specifying the knowledge, skills, and attitudes required for each component of professional performance?
2. Who should decide what the content, extent, and balance of clinical education program should be?
3. Should the performance objectives of clinical education govern the content area and scope of coverage in basic science and professional courses? How can the sequence best be integrated?
4. When should clinical education begin? Should clinical exposure always be preceded by complete didactic preparation? Can the didactic program be made more relevant by integration of theoretical concepts with clinical examples, e.g. anatomy and physiology of the cornea with use of anesthesia or application of contact lenses?
5. Expanding professional roles require added clinical education elements as well as time. How can such adjustments be made without increasing the length of the professional program? Have other areas been reduced in emphasis? Should they be? If so, which ones?
6. As students learn, they become capable of assuming increased responsibility for decision making. This implies a higher rate of judgement error and a consequent decrease in satisfactory patient care than if the clinical instructor maintained complete control. Yet learning is promoted by making decisions and seeing their consequences. How can this conflict be resolved?

Presentation Summary

An introduction was given that outlined the confusion that exists with the term "objectives." The presenter pointed out that over the past decade many authors have used different words to mean essentially the same thing concerning objectives. Having defined and clarified the various words being used for educational objectives the presenter addressed two major questions. The first question was "What is new about objectives these days?" The presenter in answering this question focussed on: a) the different ways professionals are using objectives, b) how to determine objectives and keep them current; and c) who should determine the content and scope of objectives.

The second major question dealt with the ticklish issue of how one organizes and sequences objectives so that various disciplines may be coordinated and integrated.

Workshop Conclusions and Recommendations

Based on the presentation and workshop discussions, the following conclusions and/or recommendations were made:

1. Assurance of optometric standards of excellence is imperative. In the light of optometry's role as a health care profession, the definition of the "generalist" should be defined epidemiologically, reflecting society's requirements for optometric care. Such an effort should be undertaken with full recognition of identifiable legal constraints, and with the goal of specifying the knowledge base, skills and attitudes required by the optometric generalist.
2. Performance objectives for clinical education should govern the content and scope of the optometric curriculum. These objectives should be based on the role of the optometric generalist as derived epidemiologically.
3. Planned and periodic review of the optometric curriculum should be undertaken in an effort to keep it dynamic and responsive to society's needs.
4. While the uniqueness of each school and college of optometry is valuable and should be maintained, the schools and colleges should all have a common core curriculum.
5. There should be an improved exchange of information regarding curricular content and methodologies among the schools and colleges of optometry.
6. The Association of Schools and Colleges of Optometry should seek to initiate an exchange of clinical faculty to share ideas, provide coordination and efficiency of efforts, and such an exchange should be for a period of time that is sufficient to achieve such goals.
7. The early entry of students into the clinical environment is recommended for the purpose of improving student morale as well as providing a sense of direction for the remaining professional education.
8. Epidemiologists, health economists, health planners and their interactions with science, technology, and ergonomics must be utilized when planning, evaluating and changing the professional optometric programs.
9. In an effort to meet an expanding role of the optometric profession, the hiring of faculty should include: a) job description specifying the desired professional characteristics of the optometric educator; b) the determination of the distribution of time between administrative and teaching facilities; and c) definition of the role relationship between administration and faculty.
10. Effective faculty development programs should be planned, implemented, and maintained in dynamic state.
11. Expertise in the specialty areas should be achieved through postdoctoral course and clinical work, especially through residency programs.

Workshop Evaluation

The overall consensus of the workshop participants was that the topical area was of interest to them, relevant and of potential use to their schools. The overall response was well above average. However, the overall amount of material perceived as learned from the workshop was only average.

ISSUE #2: The Nature, Types, Extent and Setting of Clinical Experiences Required to Provide for Present and Future Educational Needs

Topic Outline

To prepare students for future professional roles and responsibilities, an educational experience must be provided which simulates, to the extent possible, the full scope of optometric practice. Clinical education should provide sufficient numbers and types of patient encounters in a broad array of potential practice environments.

Optometric care exists within a context of total health care. The professional must be aware of the relation of vision problems to the patient's general physical and mental health as well as the effect of other health disorders on the visual system. A working knowledge of the roles of other health professionals and an ability to communicate and work with them in the patient's interest is required. Optometric clinical education should provide environments in which the student can work with other health professionals.

Questions:

1. Can minimum levels of experience in terms of numbers and types of patients be specified? Is the relationship between quantity of experience and increased learning linear or asymptotic?
2. Is it possible to provide sufficient experience to predicate competence in *all, some* or *none* of the areas of clinical activity? Should we attempt to develop proficiency in, for example, treatment of strabismus or low vision equally with that expected in spectacle or contact lens correction of refractive anomalies?
3. Should some elements of the clinical curriculum be elective rather than required? If so, which ones, and why?
4. Is continuity of care a priority? Should clinical programs be structured to permit or encourage ongoing care by the student who sees the patient initially?
5. What should be the role of off-campus satellite outreach clinic? Do frequent changes and rotations interfere with learning? How can their educational content be controlled and their learning potential assessed?
6. Are preceptorships and externships effective? Do they have unique benefits not possible in other clinical training environments? Should they be elective or mandatory?

Presentation Summary

In response to question #1, the answer is simply Yes. Indeed, minimum levels of experience can be specified and should be specified. If one examines this question based purely upon educational need, then some 1000 patient care experiences may well be necessary.

It is felt that clinical learning, although somewhat linear when one time averages clinical experiences, may well be a *step function* on a learning event-by-learning event basis. Until one reaches significantly greater numbers of patient care experiences than noted above one would expect learning to increase out of novelty and be reinforced because of redundancy.

It is possible to provide sufficient experience to predicate competence in *most* areas of clinical activity when one considers the epidemiology of vision and eye conditions. One can establish minimum levels of competence for most of the conditions reporting to the optometrist today.

The clinical curriculum should attempt to provide the didactic and clinical experience to allow minimum levels of competence in lower incidence such as strabismus and low vision. Patient population and the emphasis area of the institution may well dictate whether or not *every* institution is able to meet such standards.

The role of off-campus experiences can be considered two-fold, a) that of providing special training for career alternatives and b) providing intensive patient care experiences. The special training aspects may include but are not limited to hospital care, public service, pediatrics and rehabilitation. Intensive patient care experiences can be considered from two viewpoints: high volume experiences such as those offered by the military and comprehensive experiences such as found in rehabilitation programs. It is important to note that these experiences do not replace controlled and sheltered learning experiences in on-campus clinical education.

The value of learning experiences at off-campus sites is related to the length of the rotations, shorter rotations being less valuable since continuity of doctor/patient relationships is limited. It is desirable that rotations be of length and content sufficient to present a complete experience to the student. Currently, it is felt that six weeks is the absolute minimum time which would allow these factors to operate. Off-campus rotations may "interfere" with traditional learning experiences and teaching since the clinician supervising the intern may not have traditional teaching experience. These experiences may be either "better" or just "different." In most events, the student will regard it as better since the teaching is non-traditional. The value of off-campus experiences is influenced by their placement in the curriculum. It is important that these experiences occur *after* the intern has completed his or her basic clinical experiences allowing for evaluation by faculty and self-evaluation prior to assignment to a more independent role in a preceptorship.

Educational content and assessment of the learning potential of a preceptorship can be controlled by careful design of inter-institutional agreements and/or defining the practitioner's role as a preceptor. Satellite and contracted services are easiest to control, since they are usually staffed with clinical faculty. Outreach clinics may be controlled by a community or governmental organization and need to incorporate provisions for proving the acceptability of staff to the school or college of optometry. The most difficult to control are military affiliations, since the staff may change and the school or college will have no control over the new staff appointments. The assessment of learning potential and actual learning that occurs is difficult, since many of these experiences use non-traditional teaching methods. Perhaps the only way to accurately measure these values is to measure the pre- and post-preceptorship integration skills of the intern.

The benefits of the preceptorship experience can best be summed up by stating that the intern usually has only

patient care to worry about and quickly evaluates his or her skills and rapidly remediates problem areas. The combination of a "real world" experience away from academia combined with intensive patient care experiences usually produces a desirable change in the student's attitude toward his own skills as well as the values of providing competent, complete patient care. Often, the returning preceptee asks for more clinical experience and spends more time learning problem-solving and integrating his classroom knowledge with clinical problems and solutions.

Workshop Conclusions and Recommendations

Based on the recognition that optometric schools and colleges have the responsibility of preparing future professionals, whose roles encompass the total scope of optometric care, the workshop participants recommended that:

1. All schools and colleges of optometry be encouraged to define the philosophy and concept under which they operate their parent clinical facilities as well as affiliated outreach programs as a means of clarifying the relationship of patient care to clinical education.
2. A standard method should be developed and adopted which defines and determines patient encounters for an optometry student. Consideration for the standard should include such concerns as numbers, types, quality, setting, etc.
3. Minimum levels of patient encounters can and should be specified to assure graduation of a competent optometrist through a systematic study of learning curves of clinical care that have a standardized level. Parameters such as, but not limited to, student/staff capabilities, clinical facilities, and patient encounters need to be carefully controlled, exactly specified, and closely tailored to meet those existing or desired expectations of clinical faculties.
4. Schools and colleges of optometry can and should provide the necessary teaching and experience of *all* avenues within the scope of their profession to predicate competence. Since competence is defined as having the knowledge, skills, and attitudes to provide management and/or the proper sequential management for proper optometric patient care, and recognizing that minimal direct patient encounters may be necessary in those conditions having low or rare prevalence it should be recognized that shared experiences, case reports, video tapes, and other indirect teaching methods should be utilized to supplement direct experience in such conditions.
5. When students perform to an accepted level of competence within an educational institution's professional program, selective courses should be offered to further enrich the student's preparation. (A selective is defined as a course which redistributes total time commitment without increasing that commitment; an elective course is defined as a course, by choice, which adds to the total time commitment of the educational process outlined by the institution.)

Workshop Evaluation

Although the workshop participants found the topical area to be of strong interest to them, the amount of material actually learned from the workshop and presentation were moderate. In addition, relevance and potential usefulness of the concepts and materials presented were only slightly above average.

ISSUE #3: Methods and Techniques of Clinical Education; Responsibilities of Clinical Instructors

Topic Outline

Clinical education is concerned with mastery of techniques, continual practice in forming judgments and making decisions, and the development of attitudes about oneself, one's work and others with whom one deals. Each patient encounter becomes a mini-course in which the student responds to a clinical problem by demonstrating skills, judgment and attitudes which may be appropriate or inappropriate. In order to facilitate learning the student must know what is expected and receive immediate feedback on the adequacy of his performance. The setting and conditions must simulate as closely as possible those which will be met in actual practice.

Clinical instruction may take many forms depending on the level of competency of the learner and the complexity of the task to be learned. Basic knowledge can be transmitted in live or programmed lecture as well as by audio-visual or printed materials. Psychomotor skills are usually learned through demonstration followed by practice. Judgmental and decision making skills can be taught in paper and pencil simulations as well as in real-world clinical experiences. Attitudes are developed by role modeling and reinforcing appropriate behavior but may be enhanced by role-playing and group discussion. The instructor must have a mastery of the skills and knowledge expected of the student, experience in exercising clinical judgment, and the professional attitudes which provide a good model for the student. In addition, he must have the teaching skills to formulate and explain objectives, evaluate performance, give correction, and provide positive motivation for continued learning.

Questions:

1. What methods are most effective for instructing in the dynamics of student-patient interaction such as interviewing, case-history taking, and case presentation? How can professional attitudes best be taught?
2. What are the optimum practical student/instructor ratios at each level of clinical learning? Is it better to have prolonged supervision of students by one instructor rather than frequent changes?
3. Are non-technical attributes such as appearance, mode of dress, and language skills and usage, appropriate elements of clinical education?
4. Should the hierarchy of clinical skills, i.e. data gathering —case analysis—case management—be introduced sequentially or simultaneously?
5. Can clinical teaching skills be determined before appointment? How can clinical faculty be kept current with teaching methods? What should be the nature, frequency, and scope of in-service training programs?
6. What are the advantages in having full-time vs. part-time clinical faculty? Should clinical faculty be expected to do research? Should all faculty with the professional degree participate in clinical instruction?

Presentation Summary

During the last twenty years, researchers in the fields of psychotherapy, education and medicine have begun to ex-

plore the sources of gain in human relationships. They found that in all interactions, the counselee, student or patient could improve or deteriorate. Further, the interpersonal skills of the provider significantly correlated with the counselor's growth, the patient's compliance and the student's learning.

Early studies have identified a set of concepts and principles which sought to explain the sources of gain. Concepts such as *empathy, genuineness* and *unconditional positive regard* were defined and research techniques were constructed to rate their presence in human relationships. These and other concepts were found to be associated with patient and learner gain in a broad range of studies.

These explanatory concepts were translated into interpersonal skills through the work of Robert R. Carkhuff, Ph.D. Interpersonal skills training programs demonstrated the predictive power of this approach by measuring the effectiveness of trained professionals and paraprofessionals. Consistently the research documented that those providers and faculty with high levels of interpersonal skills were most capable of fulfilling their human responsibilities.

The transition from concepts to skills proved critical in the move to translate the research findings into methods to improve professional selection, training and evaluation. The early observation of Carl Rogers, Ph.D., that the most effective helpers were those who could experience the feelings of a patient (empathy) became a goal which a person could work towards by practicing the skill of responding.

By specifying the behaviors involved in a skill, a learner can develop a clear understanding of the skills he/she needs to practice. Concepts become usable in a teaching program when operationalized into observable and repeatable skill steps.

Interpersonal skills and effective teaching skills used in such a programmatic way provide the means for faculty to shape the future practice of their learners.

Workshop Conclusions and Recommendations

Based on the presentation and workshop experiences, the participants made the following recommendations.

1. Clinical teaching skills can be determined before appointment utilizing such mechanisms as a) interviews with the faculty, b) guest lectures to faculty and students, c) publications, d) direct clinical observations, e) short term or conditional appointment and f) residence qualifications.
2. Clinical faculty should be kept current with teaching methods through in-service training programs at their institutions and consideration should be given to regional in-service training programs involving more than one school, faculty exchange programs, the utilization of outside resources (educators from other health science training programs) and graduate education in the discipline of education.
3. In-service training programs should be conducted at least annually and preferably before the beginning of each school year and the scope of the program should be broad, covering all areas of clinical education.
4. There should be a desired mix of full time and part-time clinical educators; however, the issues should be studied further, recognizing that institutions differ and each may have a unique and singular mix.

A number of advantages and disadvantages of full and part-time faculty employment were identified within this workshop. The following is a summary.

FULL TIME	PART TIME
ADVANTAGES	
1. Familiar with the curriculum, that is, what is being taught	1. Familiar with surviving
2. Is available at other than scheduled school time	2. Does have clinical exposure in patient care in abundance
3. Generally familiar with current literature both in theory and clinical practice	
DISADVANTAGES	
1. Not practicing in "real world"	1. Not always familiar with curriculum and workings of a school
2. May or may not have the opportunity for clinical exposure in patient care	2. Not available
	3. May not be familiar with the literature

5. All clinical faculty should be encouraged to participate in scholarly endeavors with release time for it.
6. Academic programs should be related to clinical programs in that all faculty members with a professional degree should be encouraged to participate in clinical education; however, the latter should not be mandatory.

Workshop Evaluation

The participants rated their interest, relevance of the topic, and overall potential use of the concepts and materials presented, as very good. In addition, the amount of material learned from the workshop was perceived to be well above average.

ISSUE #4: Evaluation of Student Performance and Program Effectiveness

Topic Outline

There are three general purposes of evaluation:

(a) Management of the instructional process; e.g. to determine the adequacy of entering competence, monitor student progress, assign students to special tracks, identify problems for remediation, etc.

(b) Assessment of the overall success of instruction; e.g. to measure achievement of objectives, assign grades, etc.

(c) Improvement of the quality of instruction; e.g. to revise the course or the evalution instrument.

Since optometric clinical education demands the mastery of certain performances required by the professional role, there must be absolute minimum competence levels, clearly specified, met by all students. Evaluation may be based on a Pass/Fail or a letter grade criterion. Students must

meet these criteria at each level of training before advancing to the next.

Program effectiveness can be both internally and externally validated. Internal validation is primarily based on evaluation procedures which measure performance compared to course objectives. External validation measures include patient satisfaction, performance on licensing boards, and subsequent professional achievement. To get more objective assessment of program effectiveness, there should be a strong effort to obtain external validation from as many sources as possible.

Questions:

1. Should student performance be averaged for all clinical areas, e.g. contact lenses, vision therapy, etc., or should passing be based on competence levels for each area?
2. Should evaluation be based on the sum of observations of individual examinations in which conditions are as nearly equal as possible for all students? Can clinical grades be based on written examinations?
3. How can communication skills, attitudes, and characteristics such as responsibility, integrity, and industry be evaluated? What should be done about the student who combines good technical skills with immaturity, irresponsibility, or lack of interpersonal effectiveness?
4. Is it practical to devise self-paced clinical education rather than the predominant "lock step" method? What methods are available to remediate the failing student? Are there reliable means of predicting clinical performance based on pre-clinical achievement?
5. Should off-campus rotations and preceptorships have specific evaluation procedures and Pass/Fail or letter grade criteria?

Presentation Summary

The presentation directly addressed many of the questions noted above using examples and the literature related to evaluation to support the inferences.

A topic-by-topic outline of the presentation was given to all participants. A discussion of the concept of "minimum competence" along with the factors influencing the setting of standards of competence was placed in the context of developing methods for obtaining consensus regarding such statements.

The topics of assessment of communication skills, attitudes, and personal characteristics, the use of self-paced clinical instruction and the evaluation of off-campus clinical rotations was discussed in light of the medical and associated health professions experiences.

Workshop Conclusions and Recommendations

Based on the presentation and workshop sessions, the conference participants made the following recommendations in reference to the evaluation of student performance and program effectiveness:

1. Student performance should be assessed independently for each clinical area defined in the program and passing should be based on preset competency levels.
2. Evaluation should be based on a combination of: a) observations by the clinical faculty member in actual patient care situations; b) structured practical examinations; and c) written examinations.
3. Interpersonal and communication skills, as well as personal characteristics, should be evaluated prior to admission to the optometry program by on-campus interviews and/or psychological testing of all applicants. The same area should be constantly evaluated for each student during the preclinical and clinical phases of the program, and methods of remediation should be developed to help students deficient in any of these areas.
4. Innovative programs which serve as alternatives to the "lock step" approach of clinical education should be encouraged within the confines of what is practical and applicable for each school and college of optometry.
5. Remedial programs (such as counseling, tutoring, leaves of absence, etc.) should be implemented to reach students that are deficient in given areas of the professional program.
6. Sufficient, reliable, and valid means of predicting clinical performance based on preclinical achievement are lacking, and therefore, ASCO member institutions should be encouraged to research and develop such criteria.
7. Off-campus rotations should have specific procedures established by the parent institution for student monitoring, evaluation, placement, and follow-up support.
8. Student performance in a clinical setting should be based on either a Pass/Fail system or the standard "A-F" system.

Workshop Evaluation

Overall, a very positive response was received from the conference participants; the topic stimulated significant interest and was very relevant to their activities and was felt to be of potential use in the individual schools and colleges. In addition, the amount of new material learned was also well above average.

Announcement: COVD Seeks Juvenile Delinquency Data

The Juvenile Delinquency committee of the College of Optometrists in Vision Development seeks to establish a national program on the relationship of vision, learning disabilities and juvenile delinquency. Will you help compile a complete survey of all programs that have been initiated in working with juvenile offenders? If you are, or have been, involved in any way with a program dealing with delinquents or offenders, please let the committee know the following items:

1. Your name and title of the program.
2. Is your program currently active, or a program of the past?
3. Are you / were you involved in diagnosis, treatment, or both?
4. When did your program begin, and how long was it in effect?
5. If you know of someone else who has had a program with juvenile offenders, please list the following information so we may contact them: Name Address City State Zip

All those responding will then receive a copy of the compiled data from the committee.

Send all correspondence to: Roger T. Dewis, O.D., F.C.O.V.D., Chairman, Committee on Vision & Juvenile Delinquency, 1495 Canyon Blvd., Suite 220, Boulder, CO 80302

PROJECT EVALUATION

The evaluation strategies utilized for this project were directed at a comprehensive assessment of the conference content, process, organization and overall impact on the participants. Specific evaluation instruments were developed to assess each presentation and workshop, the conference as a whole, and pre- and post-conference participant perceptions of clinical education in the schools and colleges of optometry. The following paragraphs present the results of the overall conference evaluation, the changes in participant perceptions of clinical education, as well as some concluding evaluation comments by the project staff.

Conference Summary Evaluation

Overall, the conference participants (92% responding to the evaluation) rated the presentations and workshops as very good. In addition, the conference faculty received a good evaluation. All of the four issues discussed were well received. Issues #3 and #4 were evaluated the highest with Issues #1 and #2 receiving slightly lower ratings. All four issues, however, averaged approximately 4.0 on a scale of 5. While the faculty and the workshops themselves received a very good rating, the presentation handouts and the audio-visual materials utilized (or not utilized) were rated only as average or below average. In reference to the organization of the conference, the meeting rooms, the total facilities, as well as the logistics of the conference planning and implementation, were rated very highly.

Participant Perceptions of Clinical Education

All conference participants were asked to complete a pre- and post-conference questionnaire aimed at assessing participant perceptions of clinical education in the schools and colleges of optometry. The participants were asked to rate the number of topical issues that were to be discussed in the conference in terms of what they felt were their particular institution's greatest strengths and weaknesses. While there were only a few areas that showed any significant change in terms of pre- and post-conference attitude, the results provide a beginning basis for a rational approach to the planning and implementation of strategies to correct deficiencies and sustain strengths.

Question #1:

In which one of the following broad areas of clinical education does your institution have its greatest strength and weakness?

Responding participants indicated that at their particular institutions the greatest strength was in the nature and types of clinical experiences that their students received. This was reinforced and increased by the workshop as reflected in the post-conference questionnaire. Also, it is interesting to note there was a significant decrease in the number of respondents indicating that the nature and type of clinical experiences their students received at their particular institution was their greatest weakness (from 18% to 6%). The pre-conference survey showed that the greatest weakness of clinical education in each particular school as seen by members of that institution centered around the issue of clinical faculty development and evaluation as well as student evaluation. This attitude was reinforced in the post-conference survey. The area of behavioral objectives was also consistently seen as a significant weakness both in the pre- and post-conference questionnaire, with a slight increase after the conference.

Question #2:

In which one of the following broad areas of clinical education do you feel optometric education in the United States and Canada has its greatest strength and weakness?

This question attempted to assess the overall attitudes of optometric clinical educators and administrators relative to the strengths and weaknesses of optometric education in the United States and Canada as a whole. Both in the pre-conference and post-conference questionnaire, the respondents indicated that the nature and types of clinical experiences, the methods of clinical instruction, and the sequence of clinical education were all significant strengths in the schools and colleges of optometry. In reference to the weaknesses, again there was consistency in the pre- and post-conference questionnaire results, with the identification of clinical faculty development and evaluation, student evaluation, and behavioral objectives for clinical instruction as the greatest weaknesses. It is interesting to note that while the nature and types of clinical experiences consistently were recognized as the greatest strength in a little less than 50% of the respondents, the number of respondents indicating this area as a significant weakness increased in the post-conference survey from 11% to 22%.

Question #3:

Which of the following issues in "Topic 1—Behavioral Objectives for Clinical Instruction" is most and least important at the present time at your institution?

This question addressed the issue of behavioral objectives for clinical instruction and asked participants to identify those aspects of this issue that they felt were most and least important at their institutions. Respondents consistently indicated that the area of technical skills versus judgmental capabilities was the most important issue at their particular institution. In reference to the area of least importance, there was a shift from the pre-conference to the post-conference survey. In the pre-conference survey the majority of respondents identified the changing scope of optometric practice as the least important issue on campus. In the post-conference survey, the least important issue was identified as the non-cognitive aspects of patient care, however there was an overall positive response to the workshop dealing with non-cognitive or interpersonal relations aspects of patient care. That is, given the participant recognition of the importance of this area, the clinical faculty recognized that in fact this issue has received less attention than it probably should.

Question #4:

Which of the following issues in "Topic 2—The Sequence of Clinical Instruction" is most and least important at the present time at your institution?

Question #4 surveyed participant attitudes concerning the sequencing of clinical instruction. A significant majority of respondents in both the pre- and post-conference survey indicated that problem-solving orientation to patient care

and the integration of clinical science with basic and applied health sciences were the most important issues at their institutions. In reference to the respondents' perception as to the aspect of sequencing of clinical instruction that they felt was least important, the majority in both the pre-conference and post-conference survey indicated that the question of when to begin patient care experiences was least important.

Question #5:

Which of the following issues in "Topic 3—Methods of Clinical Instruction" is most and least important at the present time at your institution?

This question addressed the issue of the methods of clinical instruction. In both the pre-conference and post-conference survey, the majority of the respondents indicated that the issue of student/patient interaction skills was most important. The issue of self-paced clinical instruction was consistently seen as least important. There were no significant differences in the pre-conference and post-conference perceptions in this area of clinical education.

Question #6:

Which of the following issues in "Topic 4—Nature and Types of Clinical Experience" is most and least important at the present time at your institution?

This question addressed the nature and types of clinical experiences. The issue of the need to specify the quantity and quality of patient care experiences consistently was seen as the most important issue in this area of clinical education. The issue of practice models used in clinical education consistently was seen as having least importance in the schools and colleges. Again, participant perceptions in this area of clinical education did not significantly change after the conference.

Question #7:

Which of the following issues in "Topic 5—Clinical Faculty" is most and least important at the present time at your institution?

This question addressed the issue of clinical faculty and its role in the educational process. In both the pre-conference and post-conference survey, the issues of continuing competency and development of clinical faculty, and the criteria for selection and retention of clinical faculty were seen as the most important issues facing their institution. However, the issue of criteria for selection and retention was seen as significantly more important after the conference than before the conference. Issues of research responsibility of clinical faculty and the desired mix of part-time and full-time clinical faculty were consistently seen as the least important issues.

Question #8:

Which of the following issues in "Topic 6—Evaluation" is most and least important at the present time at your institution?

This question addressed the area of evaluation of clinical education. In both the pre-conference and post-conference survey, a strong majority of the respondents indicated that the methods for determining student performance, e.g. direct observation, practical examination, etc., were the most significant issues at their particular institution. In reference to those aspects of evaluation that the respondents saw as least important, there is a significant difference between the pre- and post-conference survey. In the pre-conference survey, the issues of institutional grading policies of clinical education, and the assessment of non-cognitive behaviors, were equally seen as least important. However, in the post-conference survey the issue of institutional grading policies was overwhelmingly seen as the least important issue. This shift resulted from a significantly decreased number of respondents identifying the assessment of non-cognitive behaviors as a least important issue. This is consistent with other findings pointing out the growing recognition of non-cognitive aspects of clinical education as being very important.

Staff Evaluation

To the best of our knowledge there has never been such a gathering of clinical educators for the expressed purpose of reflection and recommendation for action.

All schools and colleges of optometry in North America participated in the process while over 90% of the participants evaluated the conference. In addition, 88% of the participants responded to the extensive pre-conference questionnaire and 68% responded to the post-conference questionnaire. These results alone demonstrate the interest in the subject material presented.

Some participants wrote a brief narrative on the evaluation instruments; in such cases the overwhelming majority were statements regarding the high quality of the workshop and presentations.

In summary, the *process* was an exceptional educational and communications experience for the participants while many of their consensus recommendations reflected the need for a continuing dialog regarding this very important topic.

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The adjunct faculty included:

Paul J. Munson, Ed.D., Associate Professor, Medical College of Virginia

Laurence C. Bauer, M.S.W., Instructor, Pennsylvania State University College of Medicine

Jane F. Towers, M.S., Assistant Professor, Pennsylvania State University College of Medicine

Hiram List Wiest, M.D., Associate Professor, Pennsylvania State University College of Medicine

Barbara Andrew, Ph.D., Department of Research and Development, National Board of Medical Examiners

Jack Maatsch, Ph.D., Professor, College of Human Medicine, Michigan State University

Publications by Faculty of the School of Optometry University of Waterloo 1976 to 1978

Susan Morton, B.A., B.Ed. and George Woo, O.D., Ph.D.

Between 1955 and 1966, four full-time faculty members of the College of Optometry of Ontario published 18 articles in various journals.[1] From 1967 (when the College of Optometry of Ontario became an integral part of the University of Waterloo) to 1974, the number of full-time faculty members increased from five to thirteen, and the total number of their publications during that period was 135.[2]

From 1976 to 1978, seventeen faculty members published 144 papers. Clinicians at the school co-authored some of these and published 4 others, bringing the total to 149 publications. Of the total, 138 were articles published in 24 journals of optometry and related sciences; the rest were books, sections of books, Congress papers, a report and a thesis (see Table 1). Bibliographic information about each publication is given on the following pages.

From this list, optometric research activities at the University of Waterloo School of Optometry can be easily ascertained. Their scope ranges from single-cell recording to continuing education in optometry. In addition to informing optometric educators and researchers elsewhere of our activities, it is hoped that interaction with other researchers with similar interests will be encouraged through the publication of this list.

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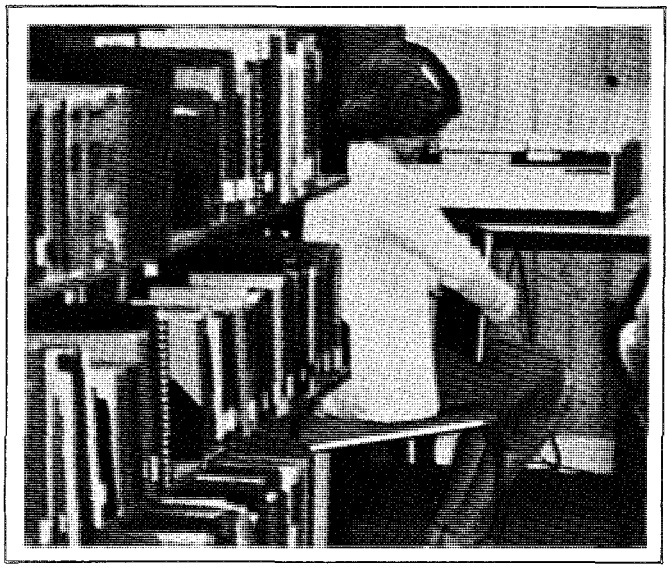
TABLE 1
Publications—January 1, 1976 to December 31, 1978

	Articles
Am J Optom Physiol Optics	20
Am J Pharm Educ	1
Am Opt Assoc J	11
Aust J Optom	3
Behav Res Meth Instr	1
Br J Physiol Optics	1
Can J Optom	15
Can J Public Health	11
Can J Zool	4
The Contact Lens J	1
Documenta Ophthalmologica, Proceedings Series	1
Int Cont Lens Clin	5
Invest Ophthalmol Vis Sci	2
J Comp Physiol	2
J Optom Educ	3
J Pediatr Ophthalmol Strab	1
Modern Problems in Ophthalmology	5
Nigerian Optom Students J	2
Ophthal Optician	2
Optician	1
Optom Weekly/Monthly	35
The Optometrist (BCOA)	1
Rev Can Biol	2
Vision Res	8
Books, manuals, etc.	5
Congress proceedings	2
Sections of books	2
Reports	1
Theses	1
Total	149

TABLE 2
Publications of the School of Optometry, University of Waterloo, by Subject

Subject	Number	Percent
Optics, Refraction and Optometry	39	26
Anatomy and Physiology	35	23.5
Health and Optometric Education	12	8
Pharmacology	32	21.5
Epidemiology and Health Delivery Systems	9	6
Diseases	22	15
Total	149	100



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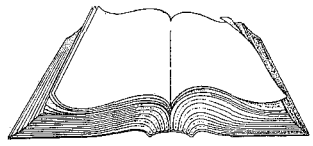

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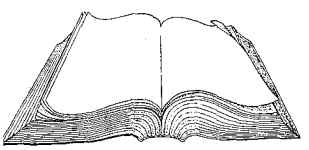

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ABSTRACTSABSTRACTSABSTRACTSABSTR

Are the Case Records Obsolete? Two Views. New England Jnl. of Med., 301, #20, November 15, 1979, p. 1112.

This article must be read in its entirety to understand the situation under discussion. Essentially, it suggests a shift in emphasis in education from diagnosis and cure of disease to patient management as the ultimate goal of health care. Its implications for professional education are that, in addition to factual material learned, the approach to the patient and/or disease practiced in school will largely determine the attitude of the doctor in practice. For this reason, greater emphasis on social humanistic, and psychological factors in disease/patient management is suggested.

Taken with the article in JAMA on holistic medicine, a change in approach or emphasis in medical health care may be signaled.

Iatrogenic Night Blindness and Keratoconjunctival Xerosis, N.E. Jnl. of Med., 301, #17, October 25, 1979.

A letter describes the effect of gastrointestinal surgery on night vision due to vitamin A deficiency of absorption from the surgically removed small intestine. This is not an uncommon procedure which should be noted in an optometric history of the patient and further justifies thorough grounding in basic sciences for the optometrist, especially in normal and abnormal physiological processes. The link between dark adaptometry and general pathology is obvious.

New Concepts in the Teaching of Behavioral Science in the Preclinical Curriculum, JME, 54, #5, May, 1979, p. 423.

The nagging question of Behavioral Science's place in the health professional curriculum is responded to with experience in the clinical setting at the end of the first year in medical school. An approach to caring for people is described covering communication, empathy, ethics, death and dying, geriatrics, and other issues outside the narrow corridor of disease. The outcomes are both cognitive and affective and offer clinical experience early in professional careers which allows application of acquired knowledge and life experience in a most meaningful way while still a first-year professional student.

The Impact of Holistic Medicine, Medical Groups, and Health Concepts, JAMA, 242, #20, November 16, 1979, p. 2202.

The article does not rule out an association between physicians and others for the purpose of assuring health. Although the author suggests standards setting for the non-physicians (and the AMA will surely suggest that physicians should set the standards), it is interesting to note the suggestion of validity for the "Holistic" approach in the conservative halls of the JAMA.

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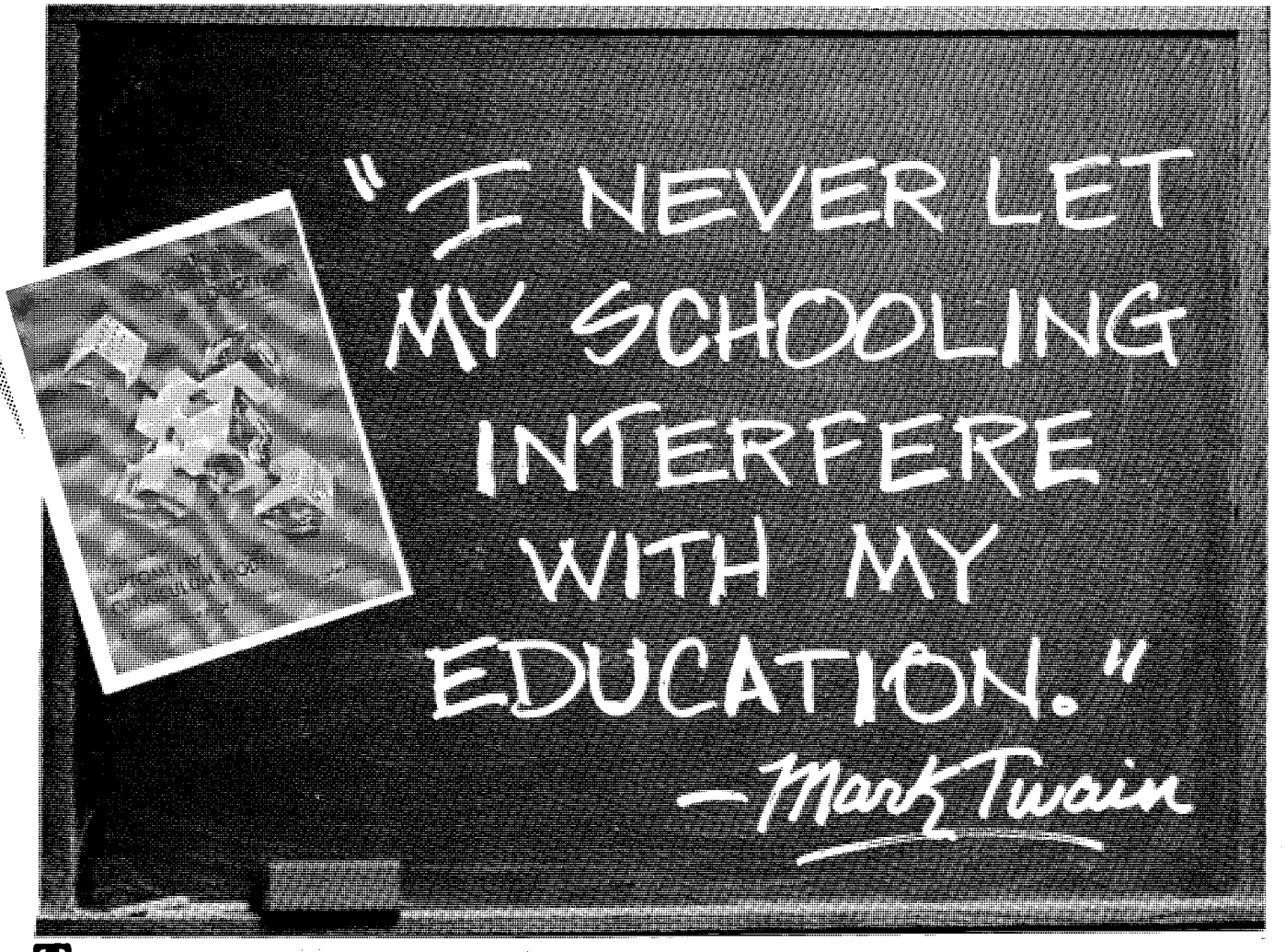

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