JOURNAL OF OPTOMETRIC EDUCATION

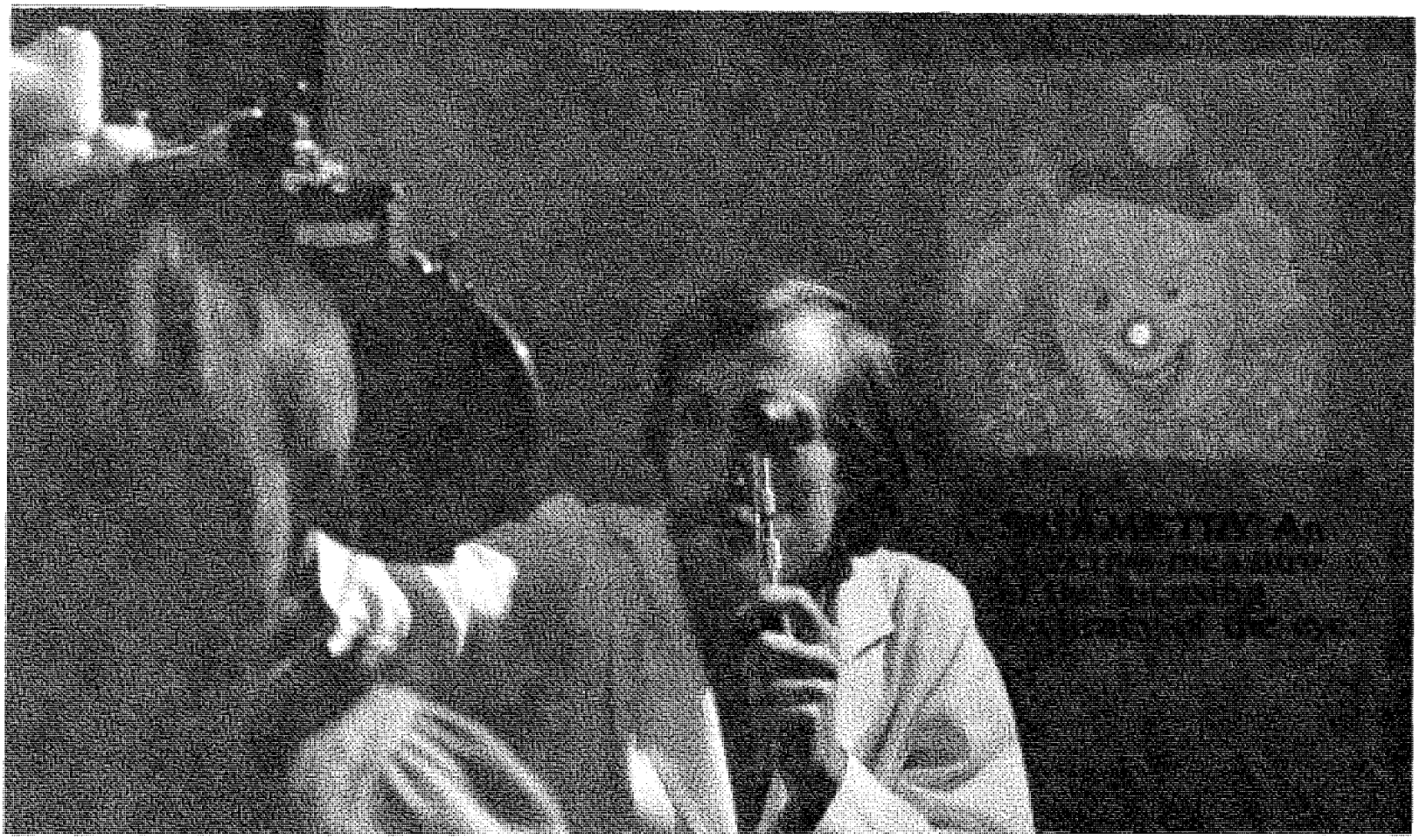
Volume 1, Number 4
Winter, 1976

Independent College

Academic Health Center

University School

Which way to go?



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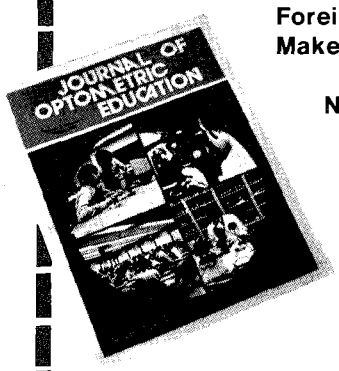

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JOURNAL OF OPTOMETRIC EDUCATION

Volume 1, Number 4

Official Publication of the Association of Schools & Colleges of Optometry

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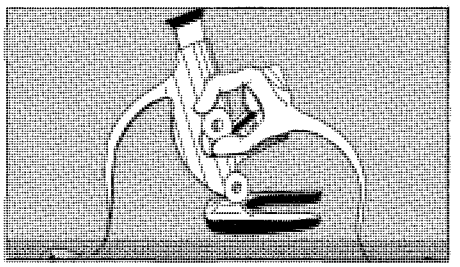

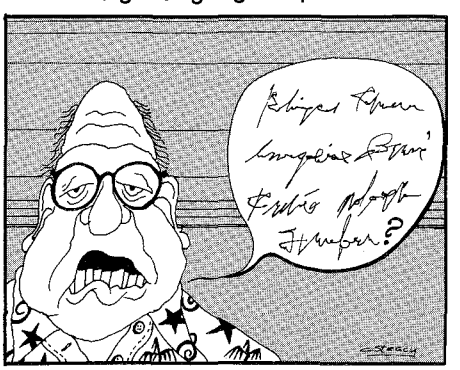

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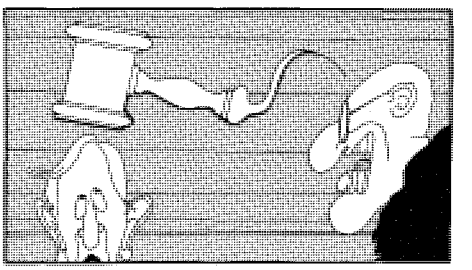
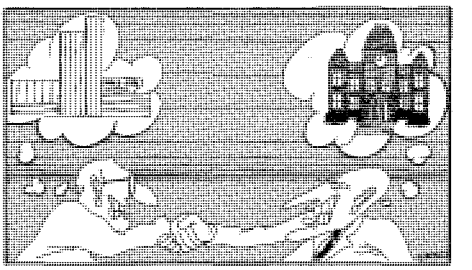




DEPARTMENTS

EDITORS' PAGE

The last issue of Volume one of the *Journal of Optometric Education* (**JOE**) is before you. As in the three previous issues, the articles have been carefully picked by the Editorial Board and cover a wide range of subjects. The diversity of the subject matter relates directly to the diversity of institutional responsibilities: to the student, to the profession, and to the public.

Fortunately, it is not THE last issue. **JOE** is alive because of the great interest and assistance provided by optomettric faculty and friends over its difficult infancy. The product of great deliberation and effort, **JOE** now stands ready to enter into its second year of production.

In this issue, **Earl Schmitt** discusses the complexities of procedures required in dealing with student discipline. His paper focuses on the implications of Constitutional due process when administrators and faculty are compelled to enforce institutional regulations.

Dr. Henry Hofstetter, Rudy Professor of Optometry at the Indiana University School of Optometry offer a trilogy of thoughts on education, early optometric literature, and the usefulness of a foreign language requirement. His thoughts, gathered over years of experience carry beyond the curriculum and conventional thinking.

The subject of academic health centers and optometric education is explored by **Merrill Woodruff** as he lines up the arguments pro and con on this timely issue. The author's own opinions are clearly presented and are an excellent supplement to the Association's stated position on the advisability of placement of new schools of optometry in such a setting.

Again this issue, **JOE** reprints a relevant article on health education from outside the optometric world. **Melvin Gibson's** article portrays the efforts to enhance basic pharmaceutical science education through the use of programmed instruction.

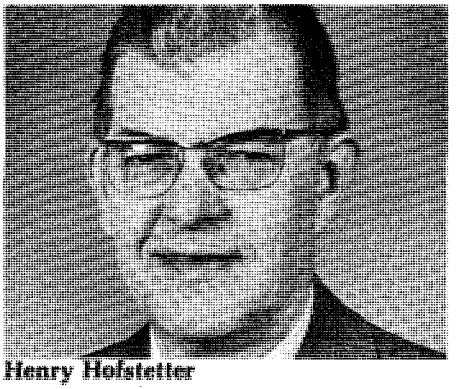
In our regular feature, profiling one of the ASCO member schools, this issue calls on the University of Alabama in Birmingham School of Optometry. As a bonus, **Professor G. V. Ball** provides a look at UAB's sister school in England, the University of Aston in Birmingham. Professor Ball explores questions of mutual concern in optometric education from the English perspective.

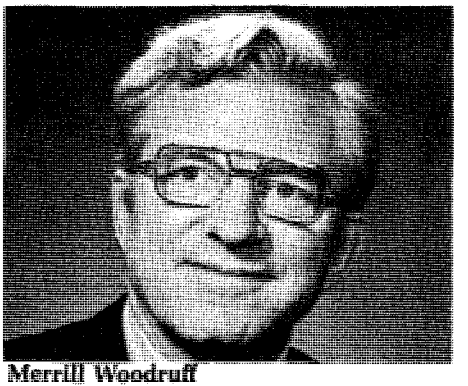
Lester Janoff, in an article on effective learning environments, calls for increased flexibility in planning for teachers in optometric education. His thesis promotes greater attention to the process by which learning can flourish in the basic and clinical sciences.

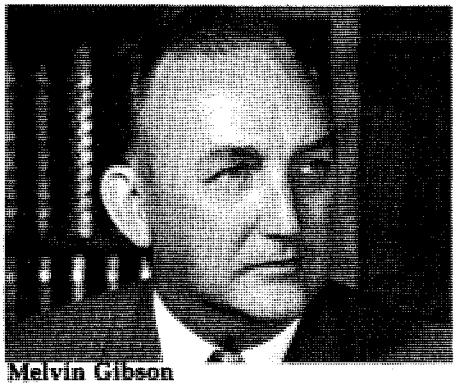
JOE readers are encouraged to share their research and experience with others. Your manuscript or paper is welcomed for consideration and publication. The next issue is scheduled for Spring, 1976.

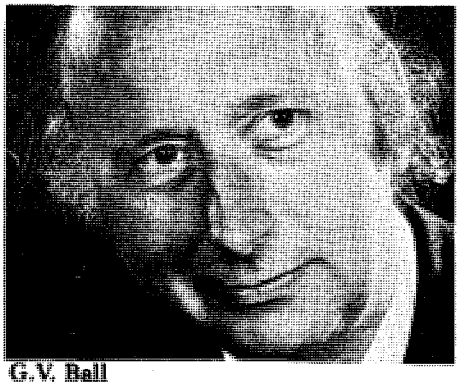
In this issue:


Earl Schmitt


Henry Hofstetter


Merrill Woodruff


Melvin Gibson


G.V. Ball

Editorial

The Havighurst Report: An Update

It has now been more than two years since the Commission on the Study of Optometric Education (Havighurst Commission) released its report and recommendations. Optometry, as a profession, has adopted many of these recommendations, seemingly discarded a few and ignored others.

One of the clearest conclusions reached by the blue-ribbon Commission involved potential new schools of optometry. Undoubtedly, new schools of optometry will be established within the next decade. The profession must seek to place these new schools in the best educational and financial environment possible or we shall be selling future generations of optometrists short. It also behooves the profession to agree on some model of training to determine how optometry should evolve in relation to other health professions.

However, the location of new optometry programs continues to be a controversial issue. Many concerned and dedicated individuals from within optometry and outside have expressed diverse opinions (see a commentary in this issue by Dr. Chester Pheiffer and an article by Dr. M. E. Woodruff) on the type of setting best suited for optometric growth, be it in an academic health center, free-standing institution, or as one of a number of "allied" health programs in a university. Without question, all of these individuals expressing themselves on this issue have the best interests of the profession at heart.

In an attempt to arrive at a consensus, the Association of Schools and Colleges of Optometry, in the latter part of 1974, adopted a twelve-point *Statement for the Establishment of New Schools and Colleges of Optometry* recommending that under appropriate circumstances new schools be placed on the campuses of state-supported academic health centers, thereby affording the institution a solid, stable economic base, and for the students, an opportunity to participate with other health professionals in their total education.

Last June, the AOA Council on Optometric Education, weighing the advantages and disadvantages of this training model, adopted a similar statement, recommending that under appropriate circumstances, all new schools should be located within academic health centers. The recommendation became part of the Council's *Guidelines* in their Manual of Accreditation, a rather appropriate place considering the responsibilities of the Council.

In September, the AOA Board of Trustees, asked the Council to submit their accreditation manual for Board review. As a result of the review, the Board asked the Council to drop the *Guidelines* from the Manual of Accreditation. The reasons for this action are not clear, but the implication drawn from the deletion of the *Guidelines* has disappointed those who have sought acceptance of this future plan for optometric education. The individual guidelines should all be reviewed independently for their own value.

For reasons of public trust, the Havighurst Study recommended that the Council on Optometric Education "should be a separate entity tied to the American Optometric Association by only the most slender threads." The Board of Trustees, in requesting a major change in the COE's Manual of Accreditation, appears to have pulled a "string."

Thread or string, let's hope the connection doesn't become a "noose" and hang the professional effort to maintain our own system of educational accreditation.

COMMENTARY

Optometry, which began as the narrowest of all the health care professions, has become so broad in scope that very few of its practitioners provide the full range of optometric services. The role and scope of optometry can be stated by modifying slightly one of the most complete existing definitions as follows: Optometry is an independent, primary, coordinate health care profession offering a unique and unified service for the maintenance and enhancement of good vision, the amelioration of vision defects, and screening for general health threats. Just as optometry means different things to different people, so will the words in this definition convey different meanings dependent on the reader's orientation to the scope of optometric care. Even so, it is a good description and most everyone, regardless of persuasion, can feel comfortable with it. But optometry is a dynamic profession in a changing health care climate and we should therefore expect that forces for change are acting on the profession.

It is well recognized that optometry is now moving rapidly to broaden its scope of care in the areas of eye and general health. Is optometry, at the same time, abandoning the area of functional vision care? Whereas the answer to this question would have been dependent in large part on the practitioners and educational forces other than the schools and colleges, this is not so today. The final answer will depend largely on the curriculum content and clinical experiences provided by our formal educational institutions.

Some aspects of these change forces acting on optometry have such far reaching consequences that they merit very careful consideration. They contain the potential to narrow and destroy as well as to broaden and advance. They have the potential to alter radically optometry's identity. Because they involve some of our feelings of inferiority and speak to some of our needs, these changes involve value systems and produce emotions which tend to cloud the potential dangers.

One change which is occurring with little more than a gentle furor at the local and state level may well remove or at least reduce the importance of that part of optometry's description referred to as "unified service." Among the change forces causing optometry to dispense with materials and dispensing are professionalism with its emphasis on fees for service, consumerism with its increasing emphasis on advertising, national health insurance with its strictures on profits, and the redirection of "commercial offices" to two-door operations. This change is blurring and promises to blur even more the distinction between the professional optometrist who

does not fill his own prescription, the two-door operation of the commercialists, and the ophthalmologists with their various relations to dispensaries. This change may play a decisive role in the unification of optometry by eliminating the professional versus commercial conflict. It is recognized, of course that the opticians and optical companies will also have a different role.

Strong change forces are operating to place all of optometry's educational institutions in academic health centers. A recent *preliminary* task force report suggested that almost all of our present institutions should consider moving into academic health centers. Even though the postulates of this report were admittedly theoretical and reality was ignored, the ripples that could have been created by this report would have been devastating. In a similar vein is the proposal that the Guidelines for New Schools established by ASCO and approved by the Council on Optometric Education be placed in the COE Manual of Accreditation. There is good consensus that this would have the effect of converting these "guidelines" into "rules." Whereas the proponents have taken an essentially all or none position, the moderates, (there seems to be no antagonists) insist that optometry has strength in diversity, that optometry interacts with many disciplines other than those customarily found in academic health centers and that the desired interprofessional clinical experiences can still be obtained.

The proponents argue that optometry must be in academic health centers if it is to be in the main stream of health care; that the location produces economies and, most importantly, improved interprofessional relations will result. The moderates point out that only three institutions have class sizes small enough to support the economy argument, that all three are new and that hopefully they will increase the size of their classes. They also note the various conflicts which exist between many of the professions now enjoying interprofessional education in academic health centers. The reader will find an excellent discussion of this problem in this issue of **JOE.** The introduction to this article shows an acute awareness by the author of the tenderness of the subject.

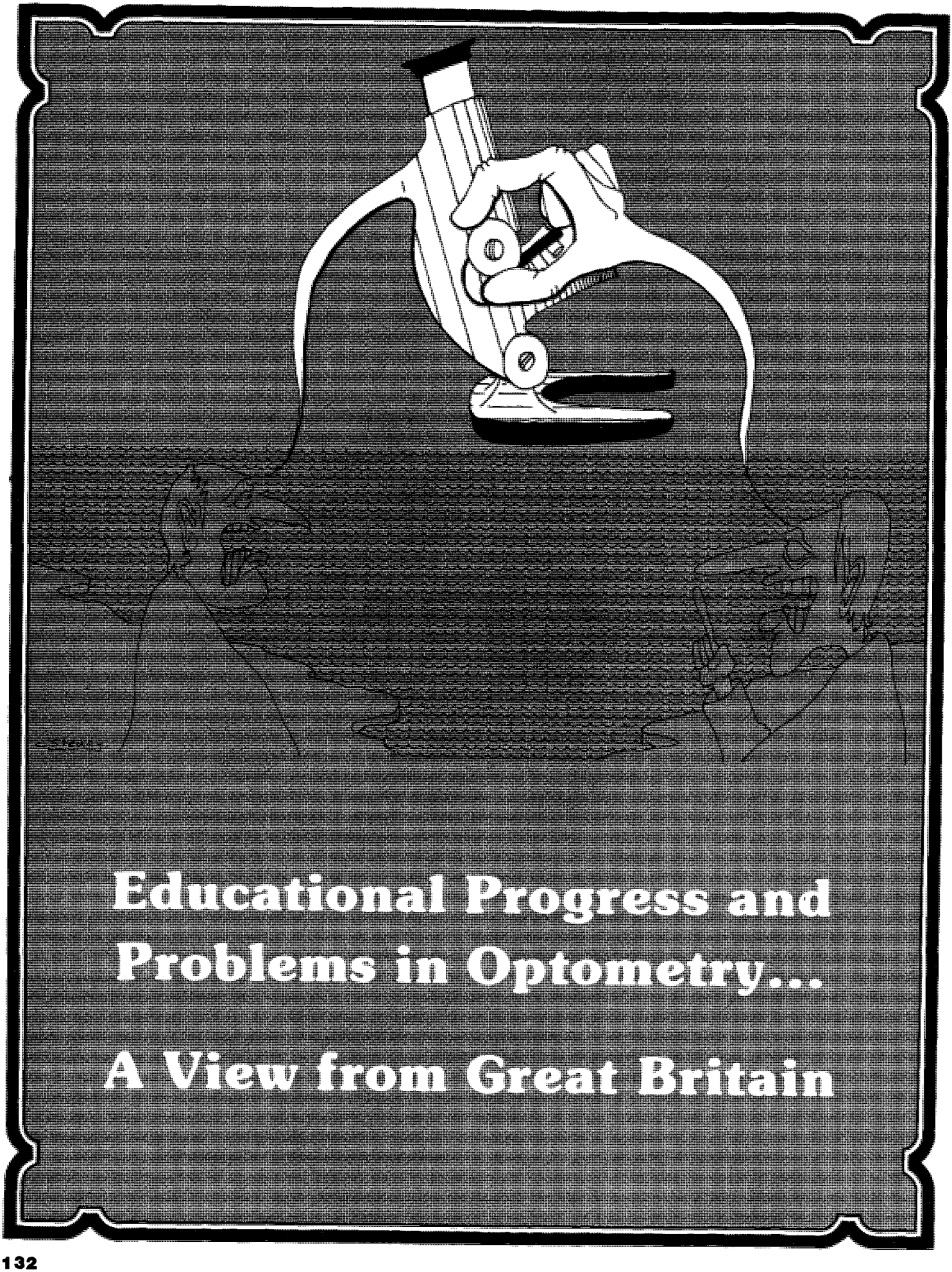
Optometry has always had difficulty combatting the "quickie" examination. Some change forces now appear to be giving respectability to a limited model of vision health care. This acceptance of a model limited to detecting disease and treating symptoms appears to result from association with other health professions which hold similar models, by optometry's legislative successes in the area of diagnostic pharmaceutical agents, and a narrow conception of vision. The farther optometry moves from its emphasis on optimal care the more it loses that part of its identity characterized as "unique." Prominent professionals outside optometry are encouraging optometrists to become second-class physicians and even making dire prophesies as to what will happen if optometry does not make the indicated changes. The position taken by these professionals, who perceive optometrists as "refractionists" and "opticians", is quite understandable. It is more difficult to understand the position of optometric educators and researchers who turn their backs on behavioral vision care.

The growth and development of behavioral vision care (functional optometry, developmental vision or whatever other appellation) or its demise is in the hands of optometric educators and researchers. Will history show that they turned their backs on functional optometry as being unscientific and unfounded or will it show that they tackled these truly difficult behavioral vision problems? Optometric education, in general, has treated this aspect of optometric care with either antagonism or benign neglect with the result that most of the work in the area has been produced by optometric practitioners and members of other professions. It is intriguing to note the treatment of this area of care by the National Board of Examiners in Optometry in its topical outline relative to that of pharmacology or even low vision.

Although optometry has played an important role in the development of behavioral vision care, it is gradually being absorbed by other professions. All of which reminds us that optometry exists in large part because of a need that was not fulfilled by another profession. One wonders whether, by ignoring a very obvious need that exists today, optometric education will cause optometry to be found attacking another profession as it has been attacked.

Optometric educators must recognize that responsibility for the future of the profession is passing more and more into their hands. They will decide whether optometrists will continue to "enhance" as well as "maintain" vision; provide "optimal vision care" or "minimal eye care"; and how vulnerable optometry will be. This writer recognizes the intense feelings that have been associated with the subjects touched on above and invites your comments. The forum is open.

Chester H. Pheiffer, O.D., Ph.D. is Dean of the College of Optometry at the University of Houston.



Educational Progress and Problems in Optometry...

A View from Great Britain

By G. V. Ball

There is a need for educators in optometry to meet together occasionally to discuss mutual problems and to exchange views about optometric education in their own countries. One of the lasting impressions I have from conversations with optometric educators both in Great Britain and worldwide is that we share many of the same difficulties, and we are working out our solutions in apparent isolation. We could learn a great deal from our different approaches and our various ways of resolving common difficulties in optometric education.

I look upon optometric education as a broad-based pyramid having "clinical practice" at its apex. Along the convergent routes from the base lie the many different but related specialties, such as human physiology, pathology, pharmacology, optics, physiological optics, and related studies.

What emphasis should be given to these individual subjects? That is one of the many educational questions which have to be answered in optometry. The emphasis will differ from time to time in different countries as optometry evolves, and no two educators are likely to agree on exactly the precise balance of course work required. Optometrists who turn to teaching seem to gravitate into "clinical" and "non-clinical" groupings and this often hinders educational discussions because of categorical loyalties. Perhaps there are other questions that once raised will lead to useful dialogue toward resolution.

Clinical Assessments

Optometrists do not use the same methods nor do they carry out the same technique in the same way. Even judgments based on similar techniques can differ, resulting in slightly different treatment or prescriptions. Assessments of students by individual practitioners can also raise problems. As an elementary exemple consider some questions relating to the simple motility test. What target should be used? How quickly should it be moved? At what distance from the patient? Where should the examiner position himself? In what sequence should he carry out the movements and how should the results be recorded?

Some optometrists may dismiss these as details of no great importance yet I have met others who have quite firm, even rigid views on each of the points mentioned. My own attitude is simple. If, during a clinical assessment a student carries out some action contrary to my own routine or to my own thinking, I am quite prepared to accept this if, under questionsing, he can give me a reasoned and acceptable explanation for his actions at that time. I might sometimes modify my own views on the basis of such discussions.

This may sound obvious to many teachers in optometry and should not need stating, yet my experience over the years suggests that not all optometrists in an examining or assessment situation take kindly to actions which offend against their own concepts of ideal practice. These clinical discussions with the individual student take much time and raise a follow-up question. Assuming that clinical assessments of students are desirable, how should one assess an individual student's clinical routine in the interests of effective use of staff time?

The most common methods of judging a candidate's performance in any activity is for each of several observers to give a global assessment of the whole performance or assessments of individual aspects such as technical merit (compare skating, diving, etc). There is a maximum score possible for the whole performance or for each section. Several refinements of the method exist. Could this type of assessment be transposed into the optometric teaching/assessment situation? In a "live" situation the answer is almost certainly "No" because one cannot give sufficient staff time (certainly not in my university) to make such collective assessments economic for every student.

In a video sound tape recorded situation this becomes a possibility because the assessors individually can run through the examination at leisure and repeat any sequence if necessary. However, nothing can substitute entirely for the live situation where an assessor can himself question the patient or the student *at the time of the examination.* More discussions or views on methods of clinical assessment of optometric students amongst teachers would be extremely useful.

Other Mutual Problems

There are other questions concerning both students and staff to which individual answers have to be found. What are some of these? In the management of resources what should be the priorities in sharing the limited monies available to optometric schools or departments? How is the teaching function of an optometric training clinic best integrated with the service function to the patient? How should teaching clinics operate in the best interests of students when optometrists often do not agree on the methods to be used nor on the interpretation of results (for example in the fitting and judgement of fit of contact lenses)?

If motivation and aptitude of potential optometry students is considered important how best to assess these?

Should students develop basic skills such as retinoscopy to a high level separately before integration into a full routine eye examination or should they at a very early stage integrate these techniques into a full examination however bad their performance in the individual technique? These are only a few of the questions which arise in optometric education and training.

Some Differences

Just as there are common problems, so there are obvious differences between counties in their optometric education and training. Some differences in optometric education between Great Britain and the U.S.A. evolve from geography and population density. The U.K. has about a quarter of the population of the U.S.A. yet this population is contained within an area about 1/36 the U.S.A. land mass. (Table 1). These differences of scale are significant. For example, from my office in Aston (Birmingham) I could reach any of the four English optometric universities by car within about two hours, using out motorway network and not exceeding the maximum permitted speed of 70 mph. The optometric universities and colleges

in Great Britain coincide with large urban conurbations. Some relevant background data for the six locations is given in Table 2.

The explanation for this link is historical and can be traced in the evolution of optometric courses and their early association with "technical" and part-time (often evening) education in Great Britain. This kind of education had to be provided within the conurbations so that students could easily reach the institutions either by public transport, bicycle or on foot after working during the day.

Table I

	Population (persons) (approx.)	Area (sq.km.) (approx.)
U.S.A.	203,500,000	9,363,128
U.K.	55,263,000	243,184

Table II

Country	City and Institution	Conurbation	Urban population (millions) (approx.)
England	BIRMINGHAM University of Aston in Birmingham	West Midlands	2.4
England	BRADFORD University of Bradford	West Yorkshire	1.7
Wales	CARDIFF University of Wales Institute of Science and Technology	South Wales	2.0
Scotland	GLASGOW Glasgow College of Technology	Clydeside	1.7
England	LONDON City University	London	7.7
England	MANCHESTER University of Manchester Institute of Science and Technology	South Lancashire	2.4

The University of Aston

There are two universities within the City of Birmingham, England, and the name "University of Aston in Birmingham" distinguishes Aston from the older "University of Birmingham" which lies almost five miles away to the south-west. Aston is a technological university whereas the University of Birmingham has Arts and Law Faculties, as well as Medicine. On the other hand Aston has Pharmacy, Psychology, Safety and Hygiene, Biological Sciences, and other related departments with which optometry has strong links.

The University evolved from the Birmingham Municipal Technical School which was founded in 1891 and offered part-time classes in subjects such as metallurgy and engineering. After several changes of name over the years another alteration occurred in 1956 when it became The College of Advanced Technology, recognising the shift to much more advanced courses. In 1963 a high powered National Committee (The Robbins Committee) recommended that all Colleges of Advanced Technology should become technological universities and The University of Aston came into being in 1966.

Finance and Organisation

The organisation and day-to-day running of any university is a mammoth task, particularly in times of economic stringencies such as we are passing through at present. The major part of the finances of universities, particularly the newer universities such as those which evolved from the Colleges of Advanced Technology, comes from the University Grants Committee. This a National Committee which receives a block sum via the Government of the day. It (The Committee) then decides the allocation to each university, usually accompanied by observations to the individual university on its use. The university is then responsible for the division of this money within the institution. Today more than ever in the past, departments and universities have to look for ways of supplementing these monies by other means. The older universities tend to have bursaries, foundations, or bequests arising from the generosity of individuals who have given money for a specific purpose such as establishing a research fellowship or professorship. The newer universities have not yet had time to acquire much money from such sources.

Research contracts can bring in quite large sums but the major part is for the particular piece of research, and any staff appointed under the contract are usually temporary.

Another source of revenue to departments can be by providing a service, where a department offers a consultant service to industry for example. Grants for equipment can be obtained from many outside bodies, including those associated with optometry, but there is considerable competition for the relatively small monies available.

Our Research Councils, such as The Medical Research and The Science Research Council, will finance research students and postgraduate students on advanced courses but courses and projects have to be analysed in depth and the competition is very great.

Another major academic difference from our American friends is the restriction of the title "Professor" to a smaller proportion of academic staff. In any academic speciality which has less than about fifteen specialist staff, there is unlikely, to be more than one

Continued on page 153

G.V. Ball, *MSc, FBOA, HD is Professor and Head of the Department of Ophthalmic Optics at the University of Aston in Birmingham, Birmingham, England.*

Optometric Education: Its Need to Create an Effective Learning Environment

By Lester E. Janoff

It is a purely personal opinion, developed over years of close contact, that optometric education in the United States is in need of considerable improvement. The striking deficiency is that the educational system as it now stands is largely devoted to feeding the optometry student knowledge point by point instead of opening the door of inquiry to him and enticing him in.

No one can deny that an adequate amount of content is being conveyed to the student. As is often exclaimed, "look how well they did on my exam!" or "we came out great in National Boards!" But are we, the optometric institutions, meeting other, just as vital needs? For instance:

1) Do we make students assume responsibility for their own education?
2) Do we free students from the dependence on the instructor as the Source of all truth and knowledge?
3) Do we encourage students to think critically and independently?
4) Do we try to discourage the students reliance on habit and routine in solving optometric problems?
5) Do we try to make the student understand the tentative nature of scientific conclusions?
6) Do we really encourage students to learn from each other?

Lest I be misunderstood let me make clear, this is as much an indictment of Optometry students as of Optometry faculty. Many students give little concern to how they will deal with continuing education after graduation. They tend to view optometry as a well defined, rather static body of knowledge and they view the faculty role as choosing the most pertinent part of that body to convey to them. Unfortunately, this has been the main emphasis of the educational system most students have passed through prior to arrival in Optometry school. Since the same can be said for many faculty, especially those without graduate school training, there is great unanimity of opinion between faculty and students. Instructors are often viewed as good or bad by the student based only on their ability to convey what the student feels is this crucial information. Many people seem unwilling to accept the fact that the printing press eliminated the need for the instructor to pass on information (The British educational system still employs the medieval title of "Reader"). Optometrists, especially, should recognize that one can read quicker silently (and hence gain more information visually) that they could by listening to someone speaking the same content. The disturbing question all this raises is that there seems to be a great incongruity between what Optometry teachers plan to do and what they actually accomplish. In both informal conferences and in formal statements of goals one hears much about students acquiring the intellectual skills that seem to characterize a scholar and yet when one reviews the examinations usually given students there seems to be an emphasis on the memorization of isolated fragments of information.

In talking informally with a number of optometric faculty throughout the nation there are three main assumptions encountered that are disturbing because they have no objective foundation. They are:

1) The belief that lecturing equals learning. It is distressing to see the number of instructors who really believe that the topics presented in lecture are the ones that are learned. I have witnessed the honest incredulity of lecturers when confronted with the fact that their students did not know certain material. Invariably the say "but I taught them that last month in lecture!" Little thought seems to

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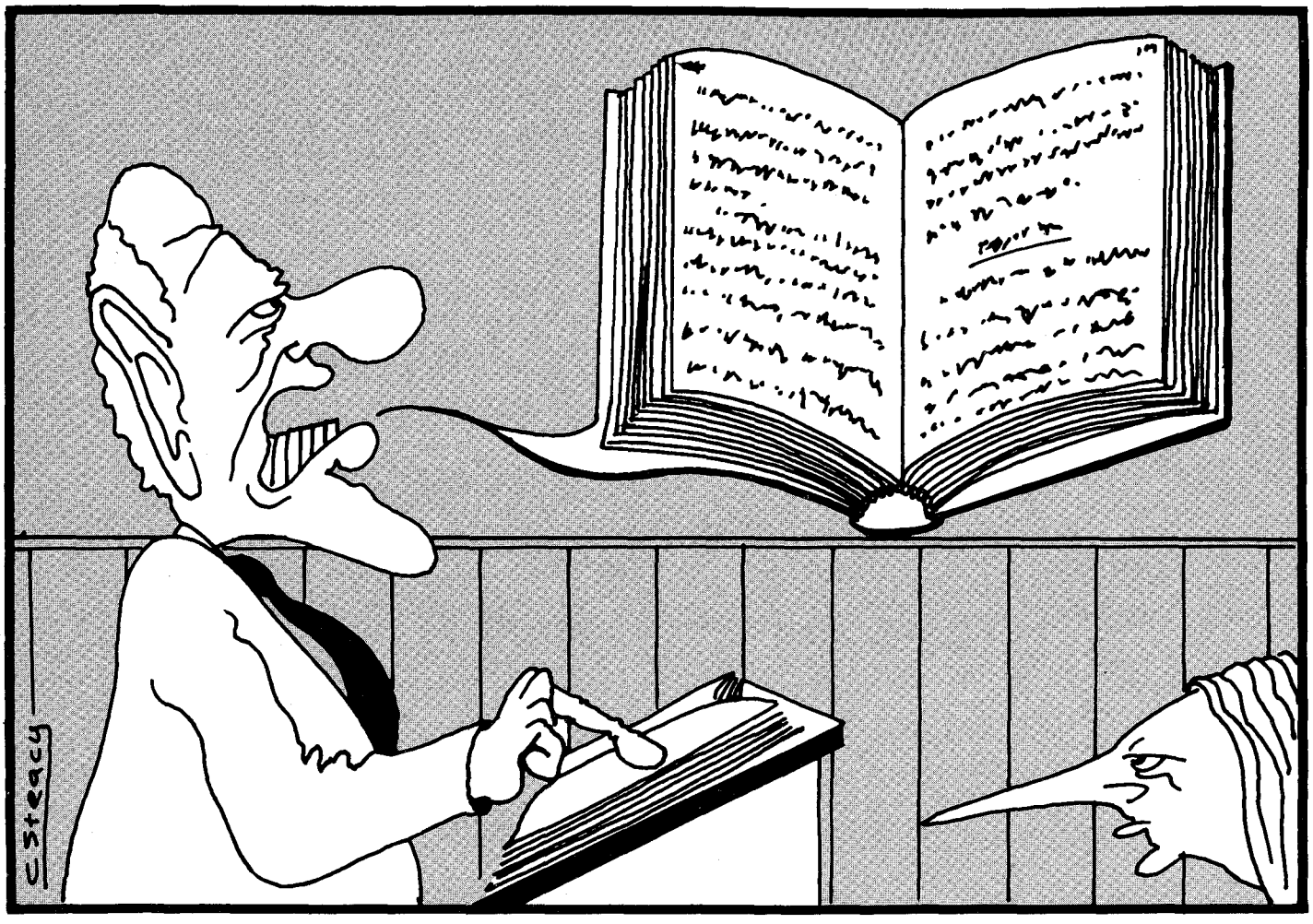


be given to the fact that under the conditions surrounding many of our lecture presentation, forgetting is much more rapid and intense than the initial learning.(1)

2) The belief that the optometry student cannot be trusted to assume the direction of his own learning. The faculty must provide only structured activities and supervise them closely. Oddly enough, if those of us reading this ask themselves how we learn best, most will answer "by setting my own pace for finding out what it is that I want to know." Note the independence of study and the importance of personal relevance.(2) Possibly the reason the instructor will utilize two sets of learning models (structured for students, unstructured for self) is this archaic commitment to transmitting knowledge. He is often more concerned about what is learned than how it is learned.(3) It is perfectly understandable when one realizes that few educator-optometrists have any training that would present the concept that they should be aware of how learning takes place.
3) The belief that comprehension results merely from the sequential mastery of information regardless of how relevant the student conceives the information to be. Retention of information and the transfer of learning are best achieved when the student participates in the learning process, is given responsibility, and lives with the consequences of his choices.(4)

Why develop an educational program based on such shaky assumptions? In order to change the attitudes of faculty who find the preceding three assumptions very comfortable, let me try to present some sort of rational explanation.

Optometry students are generally assumed to be a pretty homogeneous group. They are probably not. Studies of medical students(5) have revealed many striking contrasts among students. Learning styles as well as career interests probably vary considerably for Optometry students as well. Offering such a heterogeneous group a rigid, lockstep curriculum produces the frustration many students express. The optometry school program should capitalize on this student diversity from the very beginning of school. The early basic science should be made relevant to the clinical aspect of optometry and obtainable for those who wish to do so, outside of the standard lecture (in the lab, or chairside—with the patient). There should be more depth in basic science available to those interested and more time for those who desire to pursue that interest. Too often this area of our curriculum has little apparent connection to optometric practice or its understanding, when in fact it is very vital. The net effect results in devoting inordinate amounts of time to basic science,

The disturbing question all this raises is that there seems to be a great incongruity between what optometry teachers plan to do and what they actually accomplish.

but producing a student who has developed a rather weak grasp of the area. The cost-benefit ratio is exceedingly low. No one seems willing to define what is essential knowledge in basic science, merely that more time is needed to teach more of this voluminous subject.

The construction of parallel curricula is part of the solution I am suggesting. For instance a course in visual science might be offered in three different forms—conventional lecture, purely independent study, and some mixed form. There are, of course, a host of problems to be dealt with. Entering students who have to be pre-tested for learning style, entering knowledge level, not to mention the many design problems, staff and assignment difficulties, etc. Finances haven't even been mentioned. The theory at least is valid. Students would have some options, responsibilities, and opportunities to meet their personal goals. Each course would consist of modules of increasing depth. The student could range across the breadth of course content, and plunge in, in depth, wherever his interests lie.

One of the greatest stumbling blocks to the implementation of such an approach is that the institution must have its educational objectives in exceedingly sharp focus. The learning experiences must conform to the principles of sound educational psychology.[6] For instance:

1) Does the experience stress the relevant?
2) Does the experience involve problem solving?
3) Is the experience within the range of the student's capabilities?
4) Does the experience provide opportunity for the student to practice the kind of behavior desired?
5) Does the experience take advantage of multiple outcomes? etc.

Experimental and clinical studies have shown that forgetting can be reduced and relearning speeded by the same methods that make the original learning more efficient.[7] These are:

1) The material must be presented to the student in a context that is meaningful and that interrelates to his experience and aspirations.
2) The student must play an active role in the learning process.
3) The errors the student makes must be corrected almost immediately.
4) The student must perceive the material to which he is exposed as being related to the real world.
5) Satisfaction for the student (intrinsic or extrinsic) from the learning experience must be apparent to him.

Unfortunately, some educator-optometrists thoughtlessly crush the sparks of originality and curiosity in students. Most optometry students enter their school eager to learn, explore, and create. They soon learn, but what they learn are such things as: creativity makes some instructors uneasy, and curiosity is sometimes rewarded by a faculty member making the student feel stupid for questioning an "accepted truth." Too often instructors seem only concerned with cramming a variety of facts into the student's head so that he appears a walking encyclopedia. Equally important is how responsible is the student? How resourceful? What kind of thinking process is he best at? John Holt[8] and as A.S. Neill[9] are among the many who have written concerned volumes on how schools destroy most of the intellectual and creative capability of children. The fear of expressing ideas is even apparent in professional schools. Few optometry students seem interested in experimenting and exploring the difficult and the unknown. Could it be the fear of being wrong that prevents them? Could it be, that we, the optometric faculty, are partially responsible for this fear?

Occasionally there are hopeful signs that the system is changing. A few educator-optometrists are beginning to show an appreciation of the learning process and of the need to create in the optometry school the environment necessary for effective learning. ●

Footnotes

1. Wilson, John A.R.; Robeck, Mildred C. and Michael, Wm. B. *Psychological Foundations of Learning and Teaching,* N.Y., McGraw-Hill Book Co., 1969, p. 149050.
2. Gagne, R.M., *The Conditions of Learning.* New York: Holt, Rinehart & Winston, 1970.
3. Miller, George. "Evaluation In Medical Education: A New Look." *Journal of Medical Education,* 39: 289-97, 1964.
4. Bryans, Alexander, M. et al. "A New Type of Facility in Medical Education: The Clinical Learning Center." *Journal of Medical Education,* 50: 297-84, March, 1975.
5. Wingard, J.E. and Williamson, J.W. "Grades As Predictors of Physicians' Career Performance: An Evaluative Review." *Journal of Medical Education* 48: 311-22, 1973.
6. Tyler, Ralph W. *Basic Principles of Curriculum and Instruction.* Chicago, University of Chicago Press, 1974.
7. Miller, G.E. (Editor) *Teaching and Learning In Medical School,* Cambridge, Harvard University Press, 1962.
8. Holt, John. *How Children Fail.* Pitman Publishing Corp., 1964.
9. Neill, A.S. *Summerhill: A Radical Approach To Child Rearing,* N.Y., Hart Publishing Co., 1960.

An Educator's Trilogy

The Education Optometrists Want!

By H.W. Hofstetter

The educational needs and desires of the practicing optometrist may well be the most difficult factors for the curriculum designer to evaluate. Not least difficult is the acquisition of valid and reliable information from the graduates themselves who are actively engaged in practice. The following is an account of an exploratory survey intended to elicit some clues as to how the traditional curricula have fared in terms of optometrists' day to day educational needs.

In April 1970 I submitted a questionnaire to the 26 members of the Indiana University optometry graduates of the year 1965, of whom 21 responded, and to my 10 fellow trustees and officers of the American Optometric Association, of whom eight responded. The questionnaire was long and difficult, requiring hard concentration to answer correctly, which I explained in my cover letter addressed to each recipient personally. I appealed to each recipient to ignore the questionnaire if he/she could not devote to it the thought and time needed to answer it conscientiously.

Each recipient was asked to respond in terms of his experiences and activities and the events of his prior two days whether or not they typified his usual days and without regard to his otherwise prevailing attitudes and opinions.

Of the 29 who responded, six reported having devoted "1 to less than 7 hours" in the prior 48 hours in "optometry service," i.e., "on duty" in an optometric office. Ten had devoted "7 to less than 13 hours" and the other 13 had devoted "13 to less than 20 hours." During the two days all but one had been involved in technical or professional comunication "with other optometrists, with ophthalmologists, or with other persons comparably knowledgeable in visual science." Seventeen reported such communication to total an hour or more. Six of the 17 reported the time to exceed three hours.

Each recipient was then asked to go through a list of over 100 alphabetically arranged topics from "Abstracting," "Accounting," "Advertising," and "Anatomy" on through to "Visual Training," "Writing and Word Usage," "Youth Service Organization," and "Zoology," and to "check ( ) those which, during the last two days, you wished you had had the opportunity to study more thoroughly." Ample spaces were provided to permit adding topics which were not found on the list.

In a subsequent qeustion the respondent was asked to rank the checked items 1st, 2nd, 3rd, etc. in terms of their apparent importance in the two days' experiences.

The wide variance in response pattern, combined with the smallness of the sample, precluded any simple statistical evaluation. It also accounts for my procrastination in preparing this report. For example, the number of topics checked ranged from a minimum of three by one respondent to a maximum of 58 by each of two respondents. The median re-

H. W. Hofstetter, *O.D., Ph.D. is Rudy Professor of Optometry at Indiana University School of Optometry, Bloomington, Indiana.*

spondent checked 15 and the mean number of topics checked was 19.5. Seven checked less than 10, and another seven checked more than 22.

In spite of such variance I undertook to extricate some clues by tallying all of the checked topics in categories. For this purpose I used the eleven categories of vision science which I devised previously for a vision or scientific literature survey* and added three broad categories, Nos. 1, 2, & 4 below, generally considered outside the purview of the vision sciences. The frequencies were as follows:

1. The *social sciences,* the *arts,* and the humanities..... 204 (36.3%)
2. *Mathematics* and the *biological* and *physical sciences*..... 88 (15.7%)
3. *Clinical optometry,* including methodology, procedures, and techniques involved in vision care services..... 83 (14.8%)
4. *Recreation* and *physical education*..... 55 (9.8%)
5. *Ocular pathology,* including ocular pharmacology and medical care directly related to vision conservation..... 32 (5.7%)
6. *Monocular sensory,* or the sensory functions of the single eye..... 31 (5.5%)
7. *Socio-optometry,* or the socio-economic, professional, historical, and forensic aspects of vision care and delivery of vision services..... 13 (2.3%)
8. *Environmental optics,* including related biostatistics, epidemiology, occupational factors in vision, illumination, and public health aspects of vision..... 13 (2.3%)
9. *Optical technology,* including geometric, physical, mechanical, spectacle, lens, and instrument optics..... 13 (2.3%)
10. *Mammalian ocular biology,* or the visual apparatus as a biological organ..... 10 (1.8%)
11. *Ocular motility,* or the myologic functions of the eye..... 8 (1.4%)
12. *Binocular sensory, or the sensory functions related to the two eyes working together*..... *7 (1.2%)*
13. *Ocular optics,* or the eye as an optical instrument..... 5 (0.9%)
14. *Comparative visual science,* or the vision of non-mammalian animals and organisms..... 0 (0.0%)

It has to be realized that a great many sub jective factors and biased interpretations are involved in the determination of these frequencies. It seems significant, however, that over half (61.8%) of the topics checked (categories 1, 2, and 4) are not a part of visual science or optometry.

A slightly different analysis may be made by considering only the topics ranked of major importance by the respondents. The responses to my ranking request varied considerably as a result of some lack of clarity in my instructions. However, 27 of the 29 indicated at least their first, second, and third ranked topics in terms of apparent importance. The following is a summary:

Number of topics	Topics	Number ranking each topic 1st, 2nd, or 3rd.
2	Ocular pathology detection; visual training	6
2	Behavioral psychology; vision care of children	5
4	Contact lenses; economics; ocular pharmacology; practice management	4
3	Ocular pathology; pharmacology; public relations	3
7	Dispensing; golf; law; ocular psychology; religion; speech; writing & word usage	2
21	Anthropology; audio-visual techniques; case analysis; clinical optometry; English composition; German; individual competition sports; information processing & retrieval; neurology; ophthalmic dispensing; orthoptics; perception; philosophy; psychophysical methods; political sciences; social psychology; space perception; tennis; theoretical optometry; visual psychology; visual screening methods	1

The above tabulated topics total 39 out of a possible 145, the 119 originally listed plus 26 additionally inserted by the respondents. Of the 39 topics, 21 (54%) are not ordinarily regarded as a part of visual science or optometry. Even if each topic ranked among the top three is multiplied by its frequency, the share of top ranked topics outside the vision sciences and optometry is 37 out of 81 or 46%.

Each questionnaire recipient was also asked his age, the number of academic years of formal education after his 18th birthday, and whether or not the responses corresponded to those that he would have made without regard to his prior two days' experiences. Fifteen were under 30 years of age and 14 were 30 years or older. Twenty-seven had five or more academic years of formal education, and two had less than five. Ten reported that their responses were probably identical to those that would have been made without regard to their prior two days, 15 reported that their responses were "slightly different," and four "very different."

Significant differences in the opinion responses of the younger and older optometrists were not apparent, though, of course, the sampling was far too small to detect any real differences that might exist.

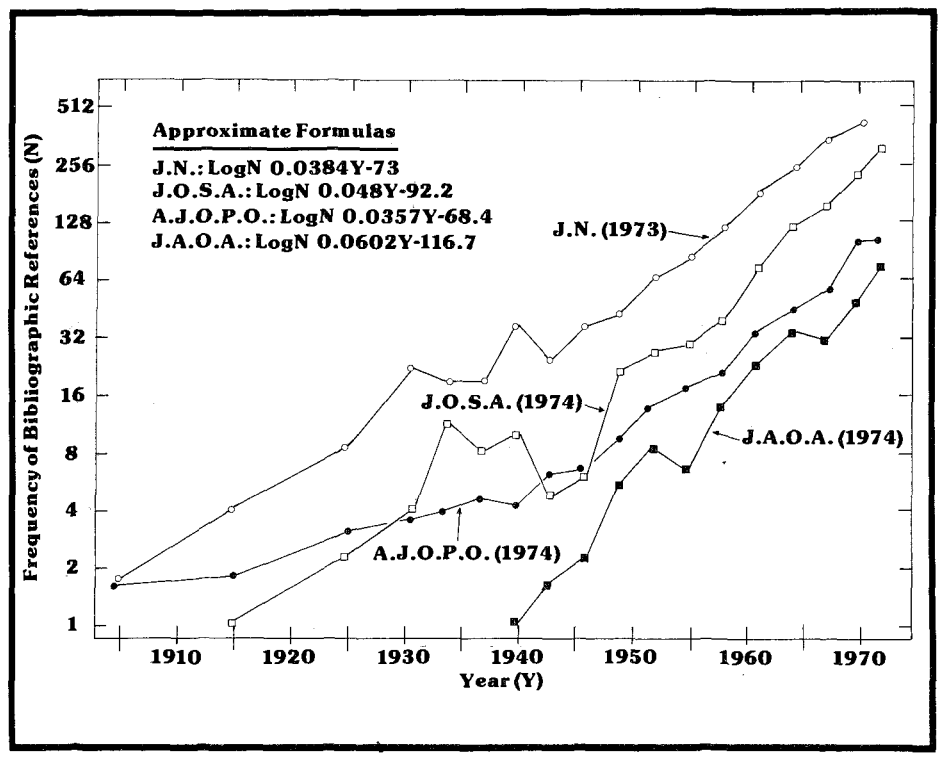
*Hofstetter, H.W., Where Is Visual Science? *The Australian Journal of Optometry,* Vol. 57, No. 8, August 1974, pp. 235-241.

Are We Overlooking Early Vision Science?

Those of us who have been perusing the optometric literature for 30 or more years frequently note the current "rediscovery" of a phenomenon, concept, or datum which had been described or reported many years earlier. Because of this one can easily gain the impression that authors of current articles in optometric periodicals do not search the early literature adequately for prior papers that deal with the same topics or questions. One can also reinforce this suspicion by awareness of the fact that modern information retrieval systems tend to be limited to material published after their installation. Thus, for example, the author or researcher who leans entirely on the Visual Science Information Center for his literature search will receive virtually no references more than five years old.

To test the validity of this suspicion I engaged a work-study student, Miss Bonnie Eleder, to tally the dates of all bibliographic references in the most recently available full year's publications of four journals, two in optometry, one in the closely related field of optics, and one in the essentially unrelated field of nutrition. The latter two were for comparison purposes. The four periodicals were the *Journal of Nutrition* (1973), the *Journal of the Opitcal Society of America* (1974), the *American Journal of Optometry and Physiological Optics* (1974), and the *Journal of the American Optometric Association* (1974).

The results are plotted in Fig. 1 with the frequencies on a logarithmic scale. The earliest year for each journal is the midpoint of a several years' interval when the number of references averaged at least one per year. The latest year for each was the midpoint of the most recent two or three year interval without a reduction in frequency, as would be expected to result from the time lapse between an author's preparation of an article and its publication date.



Noteworthy is the fact that, with the frequencies plotted on a logarithmic scale, the trend for each of the four journals approximates a straight line. Each such visually estimated straight line may be represented by a logarithmic formula, included in the figure.

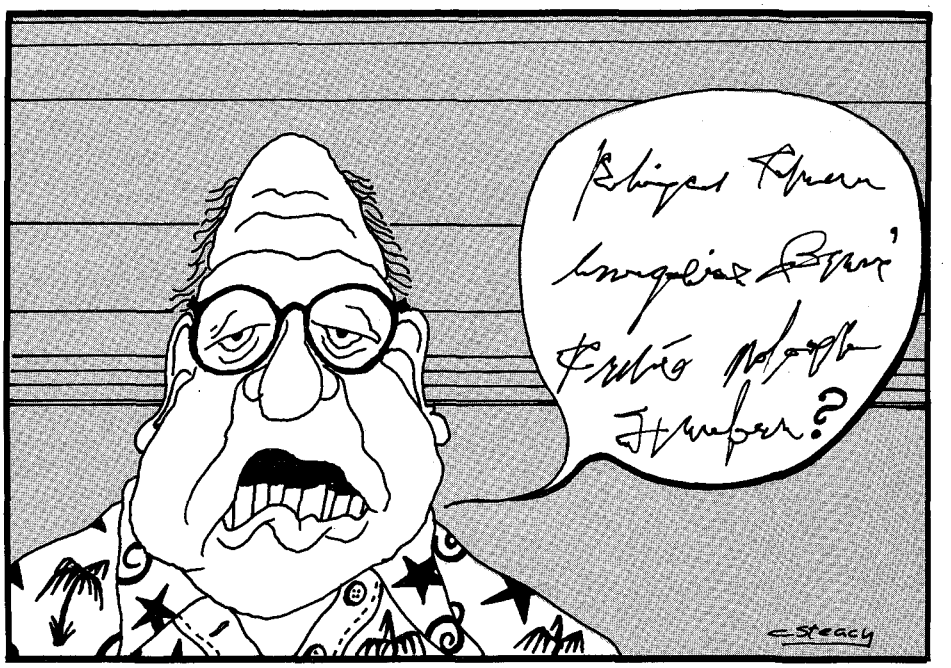
Expressed in more familiar linear terms the results show that in all four current journals approximately half of the cited references are derived from the last seven or eight years and about 90% of the cited references are derived from the last 25 years. In other words, only 10% derive from all science prior to 25 years ago.

This approximates rather closely the relative quantities of all science literature available, which Herschman* describes as doubling every 8.1 years. In other words, the sampling of prior published works seems to follow in relatively constant ratio the quantity of material published in each period. The relatively unkind suspicion expressed in the opening paragraph is therefore not supported by these results.

There are several additional implications to be deduced from the interesting trends in Fig. 1. One is the rather pronounced inversion in the J.O.S.A. trend during World War II. Another is the substantial change of slope of the A.J.O.P.O. trends before and after about 1940. A third is the marked steepness of the J.A.O.A. trend with almost no reference citations prior to 1940. The data obtained in this survey offer no clues other than those implicit in the plotted values themselves. It is very possible that the contents of the single years' volume of each journal were biased toward prior periods and that these variations might not be duplicated by sampling other recent volumes of the same periodicals.

*Herschman, Arthur, Keeping up with what's going on in physics, *Physics Today*, Vol. 24, No. 11, November 1971, pp. 23-29.

Is Foreign Language Important to Optometric Education?



Our nation is now two generations removed from its historic role as a melting pot of nationalities. A few of us remember that era as one in which almost any foreign phrase or paragraph could be translated by someone or another down the street or in the neighborhood. This capability of our American society to communicate easily with the rest of the world was unquestionably one of the great resources of our then still developing nation.

The subsequent unparalleled international strength of the American dollar, combined with the concomitant use of English as the prevailing language of commerce then made the study of a foreign language seem quite needless. During the two decades following to speak English enjoyed an open sesame to the world. It is not surprising, therefore, that during this same recent period the advocates of foreign language study leaned almost entirely on cultural merits for its defense.

Suddenly, today, we in the U.S.A. find ourselves becoming victims of a creeping communication paralysis in the world at large. At international meetings we who know only English are experiencing increased isolation. Only the few of us who have at least an elementary familiarity with a second language find it possible to communicate with persons of several other nationalities who, more typically, also have an extra language at their command, not necessarily English.

A current publication of the Modern Language Association[1] documents our present foreign language plight very convincingly. Cited are statistics, job descriptions, and testimony from informed and reliable sources showing the current demand for language as an auxiliary skill in business, industry, commerce, civil service, education, law, library science, the media, science, health services, religion, social sciences, travel, and tourism. For example, "In a single issue of the *Los Angeles Times* recently, there were openings for a driving instructor, dental assistant, camera salesman, prsonnel manager, painter, carpenter, secretary, optician, carpet salesman, electronics teacher, factory foreman, and an auto mechanic—*all* required to know a second language."

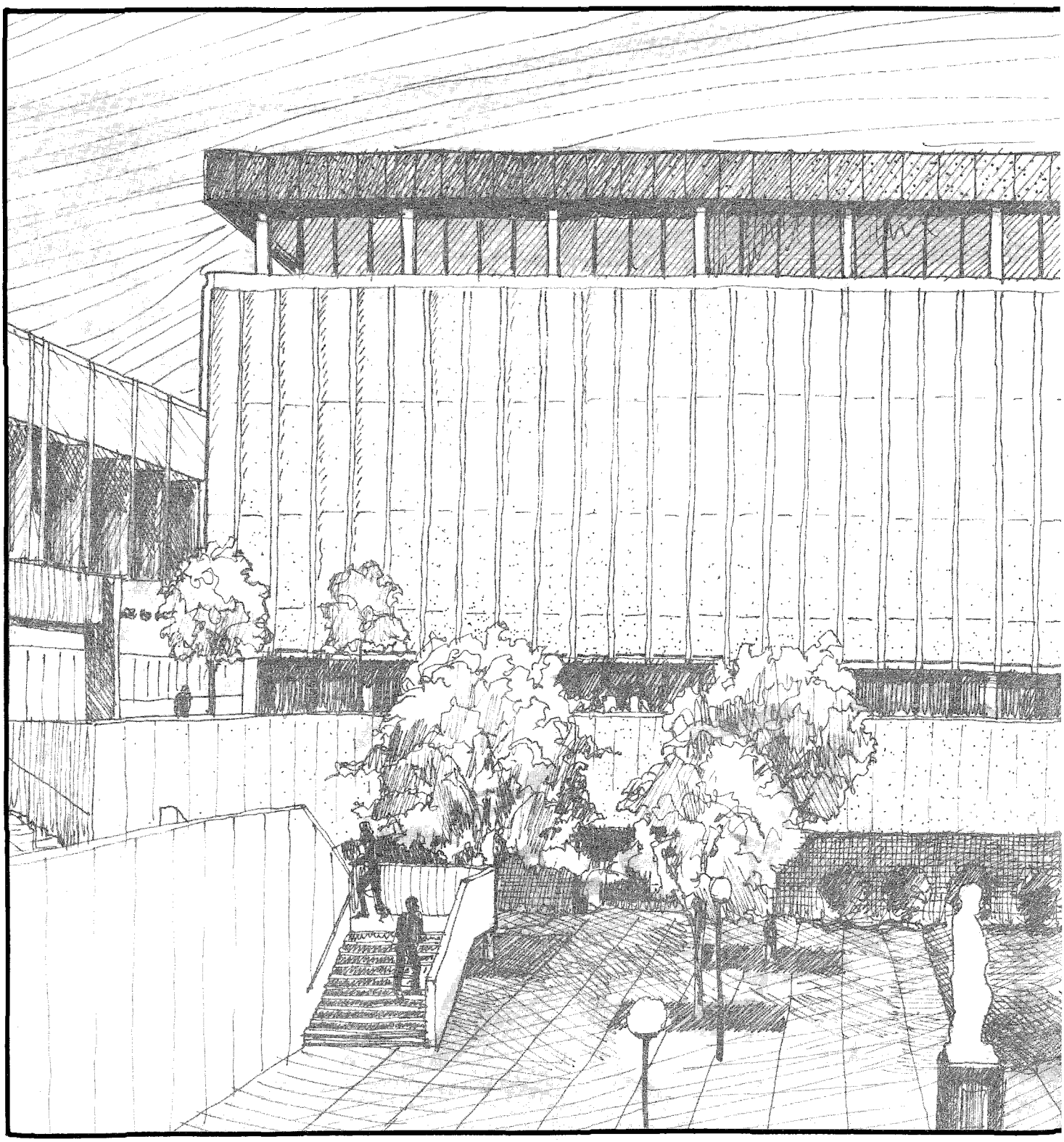
Optometry is an international profession. The ophthalmic industry has international connections. Several international congresses are listed annually as events of optometric interest in our journals. Contact lens personnel alone are conspicuously an international fraternity. Few practitioners depend so much on verbal commuication between patient and doctor as does the optometrist, and patients who do not speak English also need optometric service. The literature of optometry is replete with terms lifted directly and unaltered from other languages, such as, for example, O.D., O.S., O.U., myopia, lenticular, and gestalt. The pluralizing of datum, index, and iris into data, indices, and irides are similarly direct utilizations of foreign language construction. It is surely true that basic linguistic education has a higher frequency of relevance to optometric matters than do any of the other educational elements which we now regard, pardon me, *sine qua non.*

A current bulletin of the Association of Schools and Colleges of Optometry[2] provides the information that biology, chemistry, physics, English, and mathematics are preoptometry requirements of *all* schools of optometry. Psychology, too, is required by almost all optometry schools. Credit in the social sciences, the humanities, and physical education is required by some. Nowhere in the 20 page bulletin is there a hint that foreign language is important. Even the Optometry College Admissions Test (OCAT), required of all applicants, does not include any testing of foreign language or linguistic capability.

One, and perhaps the only, state optometry law, that of Indiana, specifies the study of foreign language as a prerequisite for

Continued on page 153

Profile: University of Alabama in



Birmingham

Illustration by William P. Durkee

By Dianne Naff

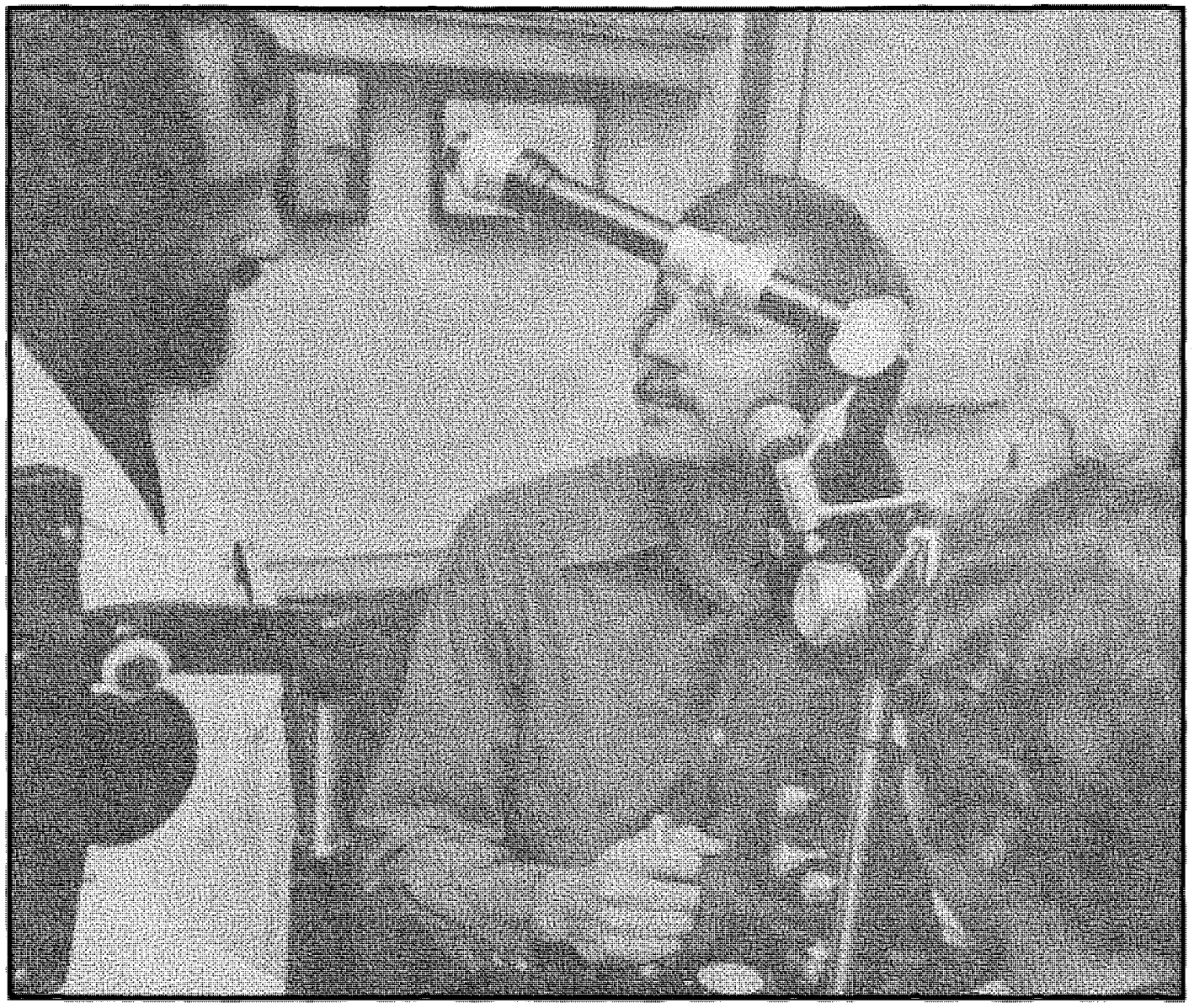
Since the creation of the School of Optometry at the University of Alabama in Birmingham in 1969, it has made noteworthy progress toward its goals of excellence in optometric education and service to Alabama as well as the Southeast. Both the professional optometry program and the optometric technician program have received accreditation from the Council on Optometric Education of the American Optometric Association. The UAB School of Optometry, which is the only university-connected optometric institution in the Southeast, and the first to be integrated within a medical center complex, has graduated 42 professional students and 27 technician students since the pilot class of eight entered in 1969. The great majority of these graduates have established practices in Alabama. The first Doctor of Optometry degrees were awarded at the School's initial graduation in June, 1973.

Optometric instruction and services are provided for the correction of refractive errors, detection of ocular pathology, blindness prevention, evaluation and fitting of contact lenses, examinations and evaluations of patients with binocular vision problems, diagnosis and treatment of patients who show visual and perceptual difficulties, and care of the partially-sighted. Student clinical instruction includes internship experience in the central and affiliated clinics of the School and its various outreach programs. During the past year the School's faculty and interns provided general and special vision care services for more than 30,000 Alabamians. Both paying and indigent patients received these services, which are supported in part by various state and local agencies as well as departments of education and local school boards, through the clinics and outreach programs of the School. Vision screenings, referrals, and other services were provided to 10,000 preschool and school-age children, mostly in Jefferson County; special services for the blind and partially-sighted were provided at Alabama's Special Technical Facility for the Blind and Deaf in Talladega. Veterans at the VA Hospitals in Birmingham and Tuscaloosa, patients at the Diabetes Hospital, and disturbed and mentally afflicted children at CDLD and Partlow State Mental Hospital received vision services provided by the optometry faculty and students. Having become a referral center for complex vision problems, the School has received many such patients from seven states and most Alabama counties.

"All of these programs give us a chance to meet community needs, and at the same time give our students excellent educational opportunities," Dr. Henry B. Peters, Dean, asserts.

This September graduate programs leading to the Master's of Science and the Doctor of Philosophy degrees in Physiological Optics were initiated by the School of Optometry in conjunction with the UAB Graduate School. The programs which not only will produce faculty for schools of optometry throughout the nation, but also will train specialists in visual science who can assume research or teaching responsibilities in the basic sciences, are the only such programs in the Southeast.

With support from the Alabama Regional Medical Program a viable continuing education program has developed for the training of optometrists in the early detection of diabetes and hypertension. Many of the School's faculty members



participate in various continuing education programs throughout the State and nation.

Even though research funds have been in short supply, members of the faculty have developed significant basic visual science and applied clinical research programs. Laboratories have been developed in the areas of ultrasound, visual neurophysiology, electro diagnostics, vision functions, visual perception, anterior segment physiology, physical and visual optics, and neuronal development. The School's new facility provides for significant expansion of these activities.

On July 21st the School of Optometry moved from temporary facilities to its new $5.5 million Optometry Building which was dedicated with official ceremonies September 12th. The dedication was followed by an open house in the new building and a reception for invited guests. Beautifully designed, the six-story structure features 70,000 square feet of floor space, and includes a primary clinic of 30,000 square feet, as well as faculty and administrative offices, teaching and research laboratories, and classrooms. Financed through funds from the federal government, community and professional contributions, and state revenue-sharings funds, the building allows an increase in each entering class from 25 to 40 students, a sixty percent increase. The faculty has been expanded to 28 full-time highly qualified clinicians and scientists and 130 students, including those in professional, graduate and optometric technician programs. By 1980 the School's enrollment is expected to total approximately 200 optometry, graduate and technician students.

Having established an outstanding reputation in its brief history, the School is ranked in a tie for number one in the nation according to a recent national study of professional schools. This national recognition is evidenced by the Dean being the American Academy of Optometry's first recipient of the Carel C. Koch Memorial Medal for outstanding contributions to interprofessional relations; the Assistant Dean for Student Affairs being selected an American Council on Education (ACE) Fellow in Academic Administration, and a physiological optics faculty member being selected for a Research Career Development Award from the National Eye Institute of the National Institutes of Health. ●

BOOKS

Book reviews, abstracts and comments are solicited on any publications or learning resource materials related to optometric education. Book reviews should include complete publication information.

VISUAL-SPATIAL DEVELOPMENT IN THE CHILD: AN OPTOMETRIC THEORETICAL AND CLINICAL APPROACH.
by Irwin Suchoff, O.D F.A.A.O.

By Alan Gold, O.D.

Irwin Suchoff, O.D., Associate Professor of Optometry, State University of New York, College of Optometry provides a scholarly overview of vision development in his new book on visual-spatial development. The author, relying on his own experiences as a private practitioner and optometric educator, as well as the experiences of other investigators, cites documented evidence to support the theory that vision is a learned process. A clinical model of the human visual-spatial construct is then developed and evaluated.

The five chapter soft-cover is neither a theoretical treatise nor a "cookbook"manual of exercises, but contains elements of each. Chapter I discusses the findings of those individuals who have made important contributions in the field of vision development, such as Gesell, Bowers, Ames, Fantz, and Piaget. For those optometrists involved with vision training and/or vision development, the chapter provides a good review. For those optometrists with just a passing interest in the subject, the chapter provides a digest of prominent names and important theories, including concise explanations of some of the theories of Gesell and Piaget.

Chapters II, III, IV, and V are geared more toward optometrists than other professionals working in this area. The book was not written solely for optometrists but they are likely to be the author's audience. Chapter II discusses the current optometric model of visual-spatial development and the succeeding chapters tie this model to the evaluative process. Chapter V relates the performance on certain developmental tests to factors which they measure including peg board to visual-motor hierarchy, standing angels in the snow to boy knowledge and control. The expected performance of the child at various ages is given for each test.

Dr. Suchoff's background as both an optometrist and an optometric educator is clearly evident. The author, a faculty member of the State College of Optometry, SUNY and a staff optometrist at the Optometric Center of New York indicates the important contributions that *optometrists* have made in this area such as Getman, Manas, and Rosner, in addition the contributions made by educators, physicians and psychologists.

The book was written, in part, to provide an impetus for much needed research in the field of developmental vision. Hopefully, the book will stimulate discussion within the profession and promote further optometric research in this area.

LETTERS

Dear Editor:

I have just returned from attending the annual meeting of the American Association of Medical Colleges (AAMC) in Washington, D.C. and would like to share with your readers some experiences that could be of great value to optometric educators. Although the general business meetings would be of little value to the optometrists, the section devoted to Research In Medical Education (RIME) is an absolute must. Let me cite some of the program issues to which papers were devoted: Evaluation of Clinical Competence; Test Construction; Strategies for Curriculum Change; Variables in Instructional Methods; and Instructional Effectiveness and Student Performance.

Some of the papers presented during the two day RIME session were: Student-Constructed Examination Items; Curriculum Content from Critical Incidents; A Procedure for Evaluating Clinically Correlated Problem Solving Skills Which Maximize Information; and Seeing Through the Dr. Fox Effect: Studies of Student-Faculty Evaluation Scoring Methods.

Then there were the panel discussions which feature considerable exchange with audience participants. Some of these were: Strategies for Faculty Development; Observational Systems for Learning Interpersonal Skills; Remote Sited Education: The Case "For" and "Against", and Innovations in Basic Science Instruction.

Having found the past two years of attendance at the AAMC meeting so useful to me as an optometric educator. I would like to suggest that:

1. Administrators in Optometry schools encourage their faculty to attend the AAMC annual meeting by giving high priority to faculty travel funds for this purpose.

2. Some official optometric organization (AOE, ASCO, or AOA) publicize this meeting to optometric educators and encourage faculty to submit papers.

3. The AAMC be apprised of the above two actions and be encouraged to officially sanction this activity.

4. The JOE either abstract or reprint pertinent articles from educational meetings of other health professions or their journals when they are applicable to the issues dealt with in optometry schools.

Having every hope of continuing my career in optometric education, I will make every effort to stay on the cutting edge of medical education until optometry schools engage in the multitude of educational research projects such as are found in medical institutions. Since that time may be rather remote, the paltry twenty dollar registration fee plus travel and living expenses is still the best bargain in town.

Sincerely,

Lester E. Janoff, O.D., M.S.Ed.

Programmed Instruction: One Answer to the Challenge to the Basic Pharmaceutical Sciences

By Melvin R. Gibson

It has been said that the country is experiencing endemic paranoia. One sees it in the Oval Office, in the Houses of Congress and, more to the point, on university campuses. Legislators and congressmen attempt to resurrect old antipathies to higher education by reminding us that we let student rebellions disrupt the campuses to our great disgrace. They assume no responsibility as parents of unsettled and rebellious youth or as makers of laws and policy which reflect neither the desires nor the best interests of the governed.

In pharmaceutical education some of us are no less paranoid. That body of knowledge which is ours and ours alone is becoming less fashionable. We currently are having a love affair with clinical pharmacy. Clinical pharmacy and its partner the structured externship (the former term will be used to mean both hereafter in this article) have a most important place in the curriculum. They are facets of pharmaceutical education which have long been neglected. The need for such experience dates to the beginning of all of pharmaceutical education when internship or practical experience was required. It has only recently been accepted as the educator's responsibility because no one else was willing to accept that responsibility and to do a responsible job. What is surprising is that it took so long to recognize the need when medicine and nursing took their similar responsibilities for granted. In pharmaceutical education we have for years naively told our students what they must do with this pharmaceutical education when they got into practice, but we did not show them what to do with it in a practical environment. They were left in the cold outside world with the technical background but without the know-how of how to handle it. Then we expressed surprise when their use of the information we gave them was not utilized effectively. Clinical pharmacy is vital to the future of pharmacy. Let us hope it has not arrived on the scene too late!

This article is not to champion clinical pharmacy. Like most parties in a love affair it is being well cared for. The question which is posed, is it, like many new loves, being too well taken care of at the expense of basic support? The basic supports in pharmaceutical education are the basic pharmaceutical sciences. What should be of utmost concern in pharmaceutical education is what is happening to the basic pharmaceutical sciences in this romantic period of new love. Clinical pharmacy must be the application of pharmaceutical knowledge to the patient and the use of pharmaceutical knowledge in cooperation with the other health professionals in the best interests of the patient. When clinical pharmacy courses in the curriculum propose to teach medicine, then they become bastard medicine, and their application in the health field will receive the ostracism they deserve. Clinical pharmacy must be based on a firm foundation of the pharmaceutical sciences or it has no justification for existing.

There are pressures on many campuses to expand or to institute those courses which will facilitate a better dialog between the pharmacist and his fellow health professionals. This is admirable. But it should be remembered that unless the pharmacist knows more than the other health professionals there is no reason for his existence. That something *more* is the body of knowledge of the basic pharmaceutical sciences.

Deans and their faculties in their love affair with clinical pharmacy and in their (paranoid?) insecurity seem to believe that the curriculum must feed on itself. For most this seems to mean staying within the five-year curriculum. To make way for clinical pharmacy and its attendant courses, what must go? Strangely enough, it seems to be that the basic pharmaceutical sciences must pull in their belts. A paradox? Indeed. It is expected

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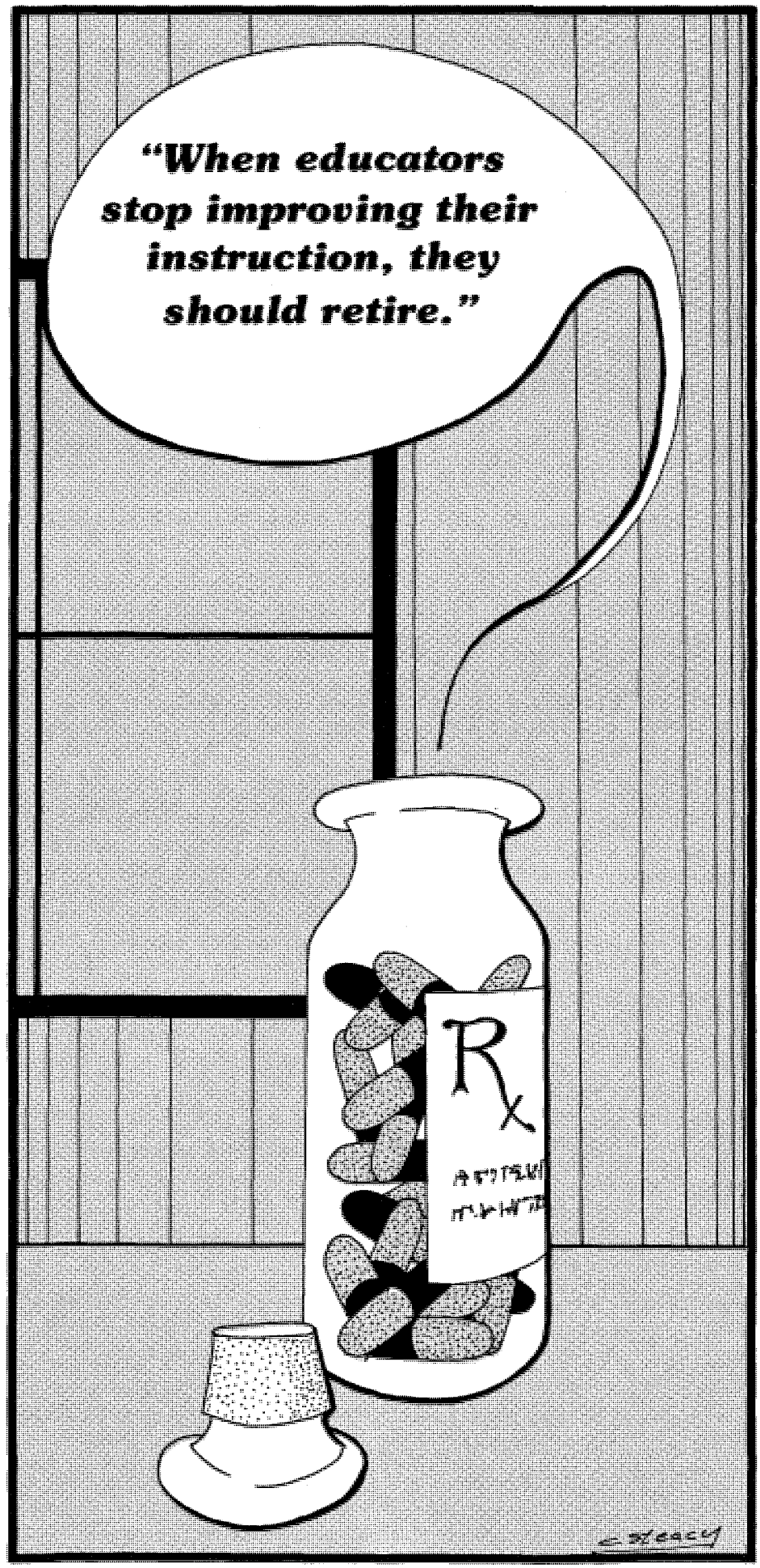
that we must give up some of that which is uniquely ours. The more we learn to communicate that which is uniquely ours the less we will have to communicate. The ridiculous extreme would be that colleges of pharmacy become quickly colleges of medicine which no one needs or wants. We will have modernized ourselves right out of existence. Rash? Extreme? Farfetched? Possibly. Paranoid? That's what started it all!

This is not meant to imply that instruction in the basic pharmaceutical sciences could not be improved. When educators stop improving their instruction, they should retire. When those of us in the basic pharmaceutical sciences give up fighting for our rightful place in the pharmacy curriculum, and specifically for those areas we represent, then *we* should retire. We should not become prisoners of our own procedures.

Those of us in the basic pharmaceutical sciences have two primary responsibilities: 1) to present the basic pharmaceutical sciences in as interesting and informative manner as we can covering that material which the pharmacist will need in his practice and 2) initiating learning techniques and practices in the students which promote the ability of the students to select, organize, and evaluate information which they will need to develop a critical perception of *pharmaceutical information* which is theirs and theirs alone. It is to this latter objective that the rest of this article is devoted.

Pharmacognosy is often characterized as dull and obsolete. If it is on any campus then it is the fault of the instructors, not the area. The description of the programmed phase of one course in pharmacognosy on the Washington State University campus can be applied to any course in the pharmacy curriculum. Only the subject modalities need to be changed. Project emphasis can be adjusted by point values and other restrictive elements. Module types are only limited by the imagination of the instructor. What is described is a system of programmed projects or modules rather than specific, contiguous programmed instruction of a specific subject matter. It gives the students a chance to pro-



ceed in areas which interest them most. It promotes study in depth. But most of all it leads students to educate themselves and to begin to form lifetime learning patterns which they can enjoy. As indicated in the survey of student reactions described later, the method is very popular with students. As Aristotle put it (2): "... for the pleasure arising from thinking and learning will make us think and learn all the more."

Programmed Instruction in Pharmacognosy

The required pharmacognosy courses at Washington State University extend over a year for a total of seven semester hours credit. The second semester deals with poisonous plants, allergy, vitamins, antibiotics, and an introduction to biologicals. This is a three-hour course with three lectures per week. The first semester is devoted to the study of plant and animal drugs and relates more to the traditional concept of pharmacognosy. It is this type of subject matter which often is less interesting to students and in which they often have difficulty finding "relevancy." Often the difficulty in finding relevancy is more imagined than real. Pharmacognosy still suffers from the past reluctance of some teachers in the field to emerge from the "weed and seed" era of stone cells and starch grains.

About five years ago it was decided to lead (some might say entrap) the students into a system of programmed instruction, the object of which was to get students interested in some of the relevant aspects of pharmacognosy which are both interesting and broadening. Like all programmed instruction, it includes a degree of academic self-motivation. Over the years it has been observed that grades are very good dangling carrots to catalyze student self-motivation!

One third of a student's grade in the first-semester course in pharmacognosy is determined by his performance in the program to be described. One third of his grade is determined by the final examination, and the other third is a weighted numerical average of three one-hour examinations and five quizzes on lecture material.

This first-semester course is comprised of two lectures and a two-hour work session per week. The course carries four semester credits. The two-hour work sessions are held in a laboratory with upholstered comfortable arm chairs, 20 to 25 students per section. An abbreviated outline of the work required or to be elected for this programmed part of the course comprises the addendum to this article. At the same time this outline is distributed, each student also is given an eight-page discussion of indexes, abstract serials, review serials, general interest handbooks and manuals, and a list of pertinent periodical references. It is important that the student understand what sources are available to him in the library for his use. It is also important that he know in what sequence they should be utilized for the most profitable use of his time, i.e., progressing from the summary material in texts, to review articles, to more specific research articles, and how to use the references in specific research articles as keys back into the literature. In short, it is important for the student not only to know what is available for his library searches but also how to use the material most effectively and efficiently. In addition to the eight-page handout, some individual reinforcement explanations may be necessary.

In the introduction of the outline it will be noted that there are listed percentile grade equivalencies for points earned. It is not possible to get a passing grade in this one third of the course without engaging in some of the projects.

Part A is the basic material of the course, and it is this section which the students do in the two-hour work sessions. All the other parts of the programmed instruction in the outline are done outside the class periods.

Part B simply describes the macro examination which is given at the end of the course and gives its point value.

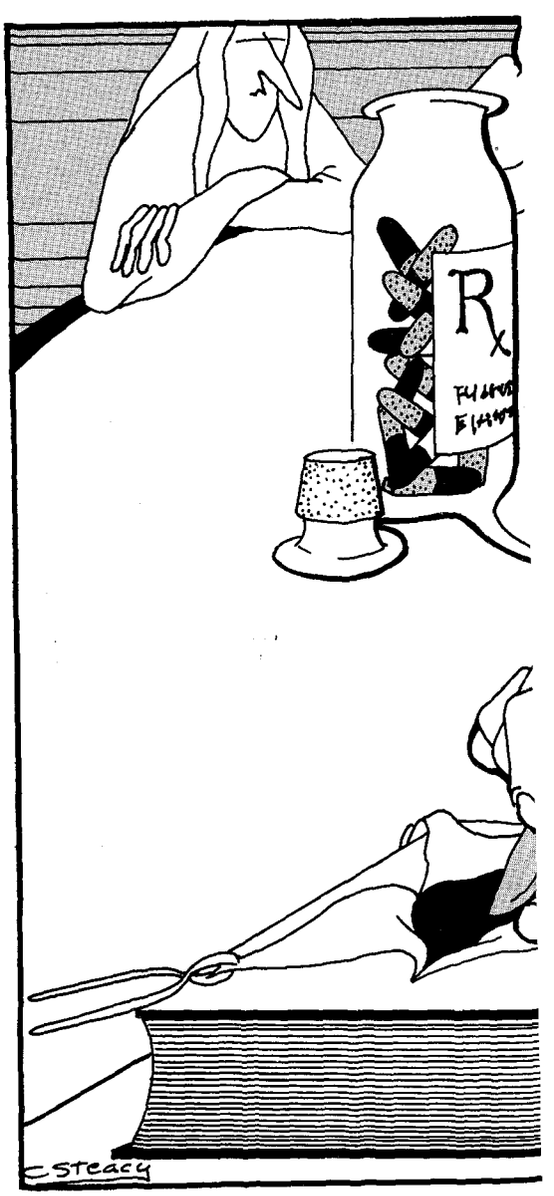
Part C recommends a number of books for the students to read, from which they are to find subject matter which appeals to their interests and pursue the subjects in the literature. This is specifically *not* a book review project.

Part D has to do with OTC drugs which contain natural products. Collections have been made of OTC drugs in the various therapeutic categories which are stored together in large containers which students can check out for use in the laboratory on specific days which the teaching assistant makes himself available for this purpose. Students analyze the products and compare the constituents and value. The written surveys each cover only one therapeutic class.

Part E involves extensive literature reviews on individually approved topics.

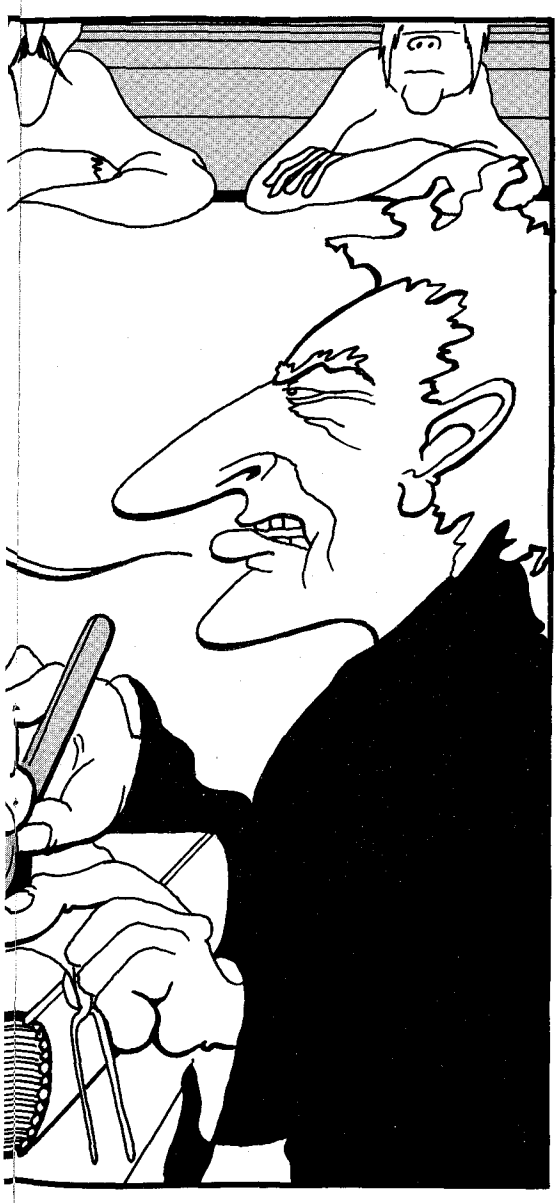
Part F is the analysis of a research paper in pharmacognosy.

There are two important aspects of the programmed instructional technique. First, projects should be spaced throughout the semester so that students are encouraged to do



the projects well before the end of the semester. This spacing is enforced by the changes in point values for the projects. Second, the students should be encouraged to diversify their projects. This is encouraged by deteriorating point values for second and third projects of the same type. This is explained in the "Note" paragraph following Part F.

It is also important to note that all projects are submitted in duplicate. The original is cataloged and filed, and the duplicate is returned. It is important that students be able (under supervision) to see these files to illustrate how projects are done and also to discourage them from using previously submitted projects. The disciplinary action for using previously submitted projects is a failing grade in the course.



Student Evaluation

How do students like this approach? Fifty-five students in last year's class answered a questionnaire. Eighty-three per cent approved the method. The rest either did not approve of it, had no opinion, or were uncertain. Sixty-four per cent thought it improved their grades, 8 per cent thought it lowered their grades, and 28 per cent thought it had no effect. Sixty-two students in the class turned in 227 projects. By far the most popular project was Project D, the OTCs. There were 150 such projects submitted. The next most popular was Project C, the projects emanating from the reading of books. There were 71 such projects. No one in this class did Project E, the literature review, and only six analyzed research papers. Only the better students are encouraged to analyze research papers.

As far as the point system for each project is concerned, two-thirds of the students approved of the point system for Project D. The opinion was split about 50-50 as to whether Project C had too few points or was all right. Very few students thought any project earned too many points!

The deadline system and deteriorating point system with time and project use were approved by 85 per cent of the students.

The students had very few suggestions about improving the system. Eight thought more work on OTCs would be helpful, two thought a project involving drugs found in pharmacies should be another project, and two suggested laboratory projects.

The possibility of including a laboratory project had been considered since the onset of the project system. It was not until recently that personnel were available for planning and supervising this individualized type of project. For the first time this year, laboratory projects have been instituted for students with a "B" average or better by special permission. The students have used these projects about 15 times this year. These have been given a maximum point value of 150 with the chance of a student doing two such projects. These projects have involved isolation of alkaloids, isolation of glycosides, preparation of a semi-synthetic substance, degradation of diosgenin, a biotransformation, isolation of antibiotic-producing microorganisms, production of antibiotics, and analysis of illicit drugs.

At the outset it was mentioned that the principal objective of this programmed instruction was to interest students in pharmacognosy and to demonstrate its relevancy to ancillary reading and practical use. It also has other, broader values. First of all it gets the students into the library. It forces them to recognize that their textbooks are only summaries of the vast literature available to them on related subjects if they are interested in pursuing subjects which interest them. It provides them with an incentive to improve their grades by their own iniative on subjects which interest them. The OTC projects require them to make comparative value judgments which are often too little exercised in science courses. The requirement of getting to express themselves in writing is something from which most pharmacy students can profit.

The most gratifying aspect of the programmed instruction feature of this course is its general acceptance by the students and their willingness to do a great deal of work on their own, outside of regular class assignments.

Conclusions

The immediate benefits gained by the students from this approach to learning are immediate in the student's self-satisfaction and seeing the results of his extra efforts usually translated into improved grades. The long-term benefits of being initiated into a new perspective of augmenting his educational process will be something which should become an integral part of his approach to self-education. A student can only become creative and original if he is prepared to seek the depth of information which is necessary upon which to build creativity and originality. That depth of information is to be found in the basic pharmaceutical sciences. ●

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Student Disciplinary Due Process: A Schoolman's Occupational Hazard

By Earl B. Schmitt

It is traditional that structured social organizations embrace a body of rules and regulations which are incumbent upon their members in order to provide systematic means to achieve mutually desirable goals and objectives. When compiled and disseminated among the members of an organization, specified and expected rules of behavior assume the status of law. In the United States, of course, such rules must not be incompatible with accepted statutes and Constitutional protections applicable to the general citizenry, nor with societal norms. This is not to say that a given system or institution might not incorporate certain restrictions and limitations as by-laws unique to that organization. However, Constitutional considerations have the power of precedent in this country, a point which has led to numerous judicial rulings concerning students and institutions of higher learning.

Experience would suggest that a society based on law affords its members a more equitable opportunity for self-development and expression than does a society without such constraints. Sub-systems within larger social organizations likewise best serve their members when designed to operate under a dynamic body of law. When tested against criteria planned to serve the best interests of the majority of a system's membership, law should act as a non-discriminatory and universal basis for both evaluating behavior and as a means to provide for the realization of institutionally defined objectives.

Referring to the college setting, questions regarding student disciplinary activity frequently concern faculty personnel. Instructors may become enmeshed in disciplinary proceedings either on an individual basis or as a result of committee membership. Faculty members are engaged by an institution most commonly for their expertise in a specific subject area. Coincidentally, their interest or experience in administrative functions may be minimal or lacking. If assigned subsequently to a committee which becomes involved in student disciplinary hearings, faculty inherently may not be informed adequately regarding procedural protocol. Again, while administrators should be familiar with the necessary rules and regulations and be able to offer guidance to faculty personnel in such instances, lack of insight may lead to judgmental errors nonetheless.

Organizational and functional rules of discipline should serve as common denominators for all participants as individuals attempt to realize personal and group goals within any system. These rules should be familiar to all involved at the onset. If considered as obligatory contractural stipulations, any disciplinary action taken against violators of rules within a system may be done so in cool and detached perspective. Regulatory procedures by authorities should be predictable under such guidelines; the statutory and Constitutional rights of individuals should not be violated thereby.

Discipline

Historically, courts have construed the concept of "discipline" rather broadly. In a setting outside of higher education for example, the Supreme Court of Michigan stated that while discipline technically has no legal meaning, it commonly signifies instruction, the communication of knowledge, and training to observe and act in accordance with rules or orders.[1] In another decision, the Supreme Court of Minnesota wrote that the term "discipline" may relate to education, involve training and culture, may refer to rules and duties, and may involve comprehension of knowledge and training to observe and act in accordance with certain rules or practice, and may include correction.[2] The Superior Court of New Jersey, again ruling in a case not in an academic environment, supported these general interpretations concerning the concept of discipline,

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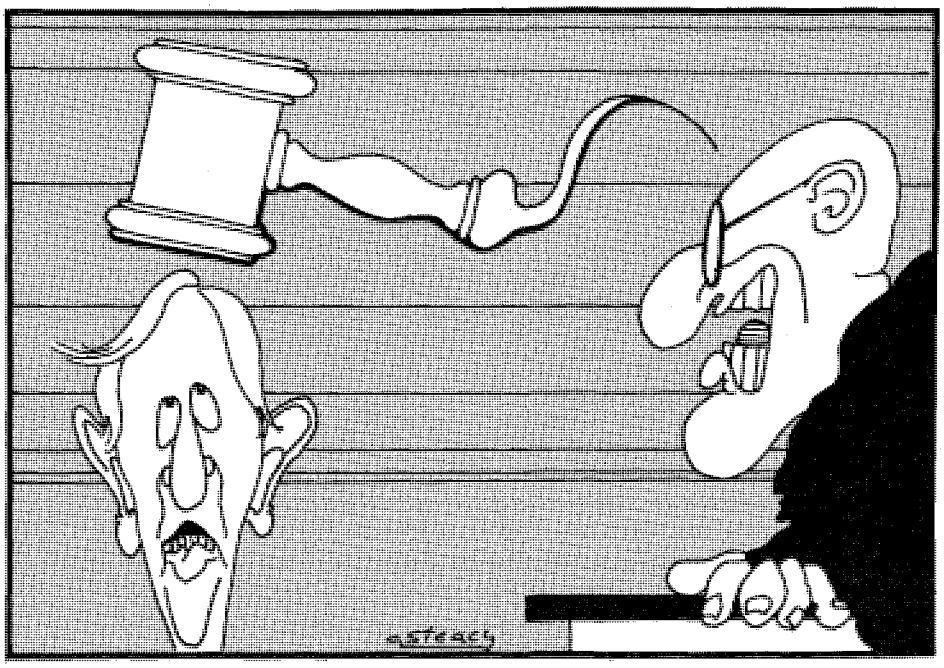

and decided further that the term implies gaining control by enforcing obedience or order.[3]

Generally the courts would appear to recognize that the recourse to discipline is a necessary entity in human organizations. As applied to individuals within a social setting by responsible and recognized persons, courts have affirmed that disciplinary procedures, when administered with discretion, may be considered to be a proper social function. Bakken extended this principle to the structure of higher education when he wrote that discipline "is the exercise of that authority that the law grants to a college to enforce its rules and regulations."[4] However, it is not within the purview of our judicial system to administer institutional disciplinary policies. This was affirmed in a decision which stated that "the maintenance of discipline, the upkeep of the necessary tone and standards of behavior in a body of students in a college, is, of course, a task committed to its faculty and officers, not to the courts."[5] Other decisions have supported this ruling.[6,7]

It may be concluded, therefore, that institutions of higher learning have considerable freedom in the definition and administration of individual codes of discipline. So long as disciplinary action by a college may be shown to be based on good evidence, courts will not intervene to grant relief to a plaintiff student unless for good and sufficient cause.[8] These codes must be applied without bias, and must not be capricious, discriminatory, arbitrary, or unconstitutional. Again, providing that procedural due process, as interpreted by the courts, is followed in the administration of disciplinary actions, institutions may be considered to be at liberty to apply those disciplinary sanctions deemed necessary for the governance of their members.

The Concept of Due Process

The idea of due process is deeply rooted in Western civilization, and may be traced back through English Common Law to the Magna Carta in 1225.[9] In the academic setting, however, the concept of "dueness" may not be fully understood always by faculty members who become involved in disciplinary proceedings. Fundamental to the issue of disciplinary due process appears to be that action which will guarantee adequate protection to both the institution and the individuals concerned. A general and workable definition has been given by Fischer, who states that due process may be considered "as an appropriate protection of the rights of an individual while determining his liability for wrong doing and the applicability of punishment."[10]

Due process has never been held to be a static principle, as was made clear in a court opinion which ruled that "what procedures are fair, what state process is constitutionally due, what distinctions are consistent with the right to equal protection, all depend upon the particular situation presented."[11] In other words, the mechanics of due process are mandated to be flexible in each instance, while at the same time preserving the idea of fair play and protecting the rights of all participants.

The entire issue of disciplinary due process in higher education was brought into critical focus as a result of student agitation during the last decade. Recognizing the need to codify guidelines and rules of procedures to assist colleges and universities in disciplinary actions, the United States District Court, Western District, State of Missouri, sat *en banc* and in 1968 handed down a summary of conduct for due process in the academic environment. An extensive discussion of discipline, as well as institutional and individual responsibilities concerning student governance, was given.

After gathering evidence from numerous public hearings and briefs on the subject, the court presented an outline for minimal procedures of due process that must be rendered to students in disciplinary situations. Included were such requirements as adequate written notice of a hearing with specific grounds for action being indicated; the student being given a chance to be heard in his own behalf; and that no action should be taken by authorities unless supported by specific evidence given at a hearing. These guidelines are written in clear and concise language, and are recommended reading for all administrative and faculty personnel in higher education.[12]

The Mechanics of Due Process

The exercise of disciplinary due process in an academic setting does not require that an errant student be afforded a trial as in a chancery court or a court of law.[13] That a disciplinary hearing resembling a civil procedure is not necessary in academic environs had been alluded to in several early court decisions.[14,15] Indeed, as was stated in one judicial opinion, to require so formal a structure "would lead to a wholly impractical and unworkable situation."[16] This becomes obvious when it is realized

that college officials hold no powers of subpoena, and cannot compel the attendance of witnesses at disciplinary proceedings or force them to testify even if they are present.

Hence, it would appear that student disciplinary actions need not be conducted in the rigid format of a civil tribunal, and indeed, cannot be so conducted. A proper hearing is the right of a student when involved in disciplinary confrontations with his college or university. However, due process in the academic world does not have to mirror the trappings of civil justice. Only the rudiments of fair play must be observed, with calm and unbiased deliberations being evidenced by institutional authorities, to qualify for court approval in student disciplinary functions.

As the areas of behavior considered proper for disciplinary actions remain the prerogative of the institution, standards may be applied to students in academic as well as non-academic settings when such behavior is relevant to a lawful mission or function of the school or college concerned. In other words, proscription of student behavior may be imposed by the institution when such behavior would interfere with or obstruct the stated functions of the institution.[17,18] It should be noted, however, that in formulating rules of conduct for students, universities and colleges must guard against loosely worded policies which, in reality, are nonspecific and overly vague.

For example, it has been determined that a doctrine of "misconduct" alone does not constitute a sufficiently precise definition of behavior to justify either expulsion or prolonged suspension of a student.[19] Institutions would be well advised to have clearly defined policies concerning student academic and non-academic behavior as well as published guidelines defining procedural due process for the handling of related disciplinary actions. Having planned for such contingencies, charges of misbehavior may be made relative to specific policy statements, and when examples of error on the part of the accused subsequently are demonstrated, disciplinary action then may be considered in light of established protocol.

Summary and Conclusions

The right of due process is Constitutionally guaranteed to every citizen of the United States.[20] A student surrenders none of his Constitutional rights as a prerequisite or as a consequence of joining any organization, corporation, or institutions.[21,22] may derive and administer rules of behavior for the governance of their members providing that these rules are consistent with the objectives of the organization, and so long as the principles of individual rights and legal due process are not violated. As stated by Laudicina and Tramutola, "judicial entry into student disciplinary cases is likely to occur only where college administrators have not properly defined their rules and the way in which those rules will be implemented."[23] Faculty and administrative personnel in higher education should become familiar with their institutional format and the legal requirements of administrative action concerning student academic and non-academic misbehavior.

Institutions of higher learning may exercise considerable freedom in their formulation of student codes of conduct. Such codes may be perceived most equitably by members when drafted on a collegial participative basis. It should be noted that while it is the right of a student to a hearing concerning disciplinary misbehavior, such action should not and need not resemble a legal trial.

With guidelines for student academic and non-academic behavior firmly established and widely published, institutions of higher learning may pursue their educational objectives in an atmosphere of mutual understanding and predictable social interaction. Such arrangements would seem to accrue the greatest benefits for the majority of those involved in higher education. ●

Footnotes

1. Stitt v. Locomotive Engineers' Mutual Protective Association, 142 N.W. 1110 (1913).
2. In re Swenson, 237 N.W. 589 (1931).
3. A.F.L. v. American Can Co., 100 A. 2d. 693 (1953).
4. Clarence J. Bakken, *The Legal Basis for College Student Personnel Work* (The American Personnel and Guidance Association, 1607 New Hampshire Ave., N.W., Washington, D.C., 1968), p. 5.
5. The University of Mississippi v. Waugh, 105 Miss. 623 (1913).
6. Foley v. Benedict, 122 Tex. 193 (1932).
7. Knight v. The State Board of Education, 200 F. Supp. 174 (1961).
8. Grossner v. Board of Trustees of Columbia University, 287 F. Supp. 535 (1968).
9. *Constitution of the United States of America: Analysis and Interpretation,* Norman J. Small, ed. (88th Congress, *1st. Session,* Document #39, U.S. Government Printing Office, Washington, D.C., 1964), p. 959.
10. Thomas C. Fischer, *Due Process in the Student-Institutional Relationship* (American Association of State Colleges and Universities, Suite 700, One DuPont Circle, Washington, D.C., 1970), p. 1.
11. Cohen v. Hurley, 81 S. Ct. 954 (1961).
12. United States District Court *en banc,* Western District, State of Missouri, 45 F.R.D. 133 (1968).
13. The State *ex rel.* Sherman v. Hyman *et al.,* 180 Tenn. 99 (1941).
14. Tauton v. McKenney, 226 Mich. 245 (1924).
15. Ingersol v. Clapp, 81 Mont. 200 (1927).
16. The People *ex rel.* Bluett v. Board of Trustees of the University of Illinois, 10 Ill. App. 2d. 207 (1956).
17. Powe v. Miles, 407 F. 2d. 73 (1968).
18. Grossner, op. cit.
19. Soglin v. Kaufman, 418 F. 2d. 163 (1969).
20. *Constitution of the United States of America* . . . , op. cit., pp. 945, 1073.
21. Tinker v. Des Moines Independent Commonwealth School District, 89 S. Ct. 733 (1969).
22. Dixon v. The State Board of Education, 294 F. 2d. 150 (1961).
23. Robert Laudicina, and Joseph L. Tramutola, *A Legal Perspective for Student Personnel Administrators* (Charles C. Thomas, Springfield, Ill., 1974), p. 32.

Foreign Language

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licensure, a requirement introduced by request of the optometrists themselves 30 years ago. This requirement of at least two high school years of study in a foreign language has been enforced regularly as an optometry admission requirement at Indiana University. Applicants not meeting this requirement in high school have been obliged to obtain at least eight semester hours or 12 quarter hours of credit in a foreign language at the college level.

Whether or not this is a hardship-producing requirement is indicated by a tally of the application papers of 468 optometry applicants to the Indiana University Division of Optometry who were not admitted in the fall of 1974. The 69 admitted students had, of course, met the foreign language requirement. Of the 468 not admitted, 319 had submitted transcripts which showed fulfillment of the foreign language requirement, and 16 showed less than the prescribed credit. The application records of 133 were too incomplete, usually due to absence of high school transcripts, to permit the assumption that they had not fulfilled the requirement. From these data it may be inferred with reasonable accuracy that 5% of the applicants did not meet this minimal standard.

Optometry applicants who initially enroll in a liberal arts college to work toward baccalaureate degrees can be expected to include one or more foreign languages irrespective of their eventual interest in optometry. Those most likely to be deficient in foreign language study are the students who enroll in lower level college or university courses solely for the primary purpose of fulfilling specified pre-optometry requirements. It follows that unless the optometry schools and colleges clearly identify the importance of foreign language study the preoptometry college and high school students and their counselors may all too willingly neglect to include a foreign language in the preparation plan.

It is therefore encumbent upon the schools and colleges of optometry to give serious consideration to the possibility of a minimum foreign language study requirement as one to be included, or strongly recommended, among the conditions to be met by applicants for admission. ●

Footnotes

1. Honig, Lucille J., and Richard I. Brod, Foreign Languages and Careers, Modern Language Association, 62 Fifth Avenue, New York, N.Y. 10011, 1974.

2. Information for Applicants to Colleges of Optometry, Fall, 1975, Association of Schools and Colleges of Optometry, Inc., 1730 "M" Street, N.W., Washington, D.C. 20036.

Great Britain

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"Professor". The exceptions will be where a visiting professor is appointed (i.e. a part-time appointment of equal standing) or where a benefactor has left sufficient money to establish a professorship from the annually accrued interest.

The number of senior posts (i.e. professor, reader, senior lecturer) will not exceed about 35% of the staff directly involved in that speciality and the number of "Professors" not much above 10%. Thus, for example, where a speciality has a total of twelve staff you are likely to find one professor, three readers or senior lecturers, and eight lecturers or equivalent. (Readers and Senior Lecturers are considered equivalent but the former is essentially a research-orientated post). There are no posts at present, as far as I am aware, of Associate Professor, or Assistant Professor, in this country.

Conclusion

The problems met in educational optometry fall into categories such as academic, clinical, and organisational and many are common to optometry worldwide. Educators can benefit considerably by discussing these aspects and by exchanging views, particularly on subjects such as the balance of early studies, the management of optometric clinics and departments, and the general financing of optometric schools and research. ●

About the University of Aston in Birmingham

Aston is as old as Birmingham itself—both were mentioned in the great 11th Century Doomsday Book of William the Conqueror.

Birmingham, including Aston, is now the centre of a great industrial region and it was near here, at Ironbridge in Shropshire, that saw the start of the Industrial Revolution. This first iron bridge is preserved and there is a fine and developing museum there. Our most famous neighbour, 24 miles away, is, of course, Stratford upon Avon, but there are equally interesting places within 20 miles, such as Coventry, with its modern cathedral rising from the old bombed ruins, and Lichfield, also a cathedral city (14th century), the birthplace of Dr. Samuel Johnson. Erasmus Darwin and David Garrick lived there too.

A short walk away from the University is the magnificent Jacobean "Aston Hall" completed in 1635 and now a museum.

Roman Britain is well represented. The historic Roman "Watling Street" joining Chester to London passes a few miles to the north, and you can still drive for miles along its route. The great Romano-British City of Uriconium with its excavations is a short distance away, whilst nearer still the smaller site of Letocetum contains a fine specimen of Roman Baths. Castles such as Warwick (10th Century), Tamworth (10th-12th Century), Kenilworth (12th Century) all lie within twenty-five miles of Aston.

The Pros and Cons of Optometry in an Academic Health Centre

By M. E. Woodruff

The task of discussing the pros and cons of Optometry in an Academic Health Science Centre places me in the position of the senator, from a state where, during the debate on prohibition, polls showed the electorate evenly divided between wets and drys. While speaking at a rally the senator was confronted with the question, How do you feel about whiskey? He replied, "While I had not intended to discuss that subject at this particular time, I want you to know that I do not shun controversy. On the contrary, I'll take a stand on any issue at any time regardless of how fraught with risk it may be. You have asked how I feel about whiskey? Well, brother, if, when you say whiskey, you mean, the poison scourge, the bloody monster, which defiles innocence, dethrones reason, creates misery and poverty, yes, literally takes the bread out of the mouths of babes; if you mean the evil drink that topples the Christian man and woman into the bottomless pit of despair, degradation, shame, helplessness, and hopelessness then certainly I am against it with all my power.

"But, if, when you say whiskey, you mean that oil of conversation, the philosophic wine and ale that is consumed when good fellows get together, that puts a song in their hearts, laughter on their lips, and the warm glow of contentment in their eyes; if you mean Christmas cheer; if you mean that stimulating drink that enables man to magnify joy and happiness, and to forget, if only for a moment, life's tragedies, heartbreak, and sorrows, if you mean that drink, the sale of which pours millions of dollars into our treasury which are used to provide tender care for our homeless and disabled, then I am for it."

The issue of educating Optometrists within a health sciences centre also places the profession in a position similar to the senator since the Ontario Healing. Arts Committee says the School of Optometry should not have been placed at the University of Waterloo but at an Ontario Health Centre.

The American Optometric Association's Council on Education strongly endorses the placement of future Schools of Optometry within Health Sciences Centres.

The Western Canada Council of Ministers of Higher Education has stated that if there is to be a western School of Optometry it should be placed within a Health Sciences Centre.

It might seem that, in the face of this prior consideration by such august bodies, the profession should endorse the position that Optometrical education be placed within Health Sciences Centres.

Prior to providing such an endorsement, let us briefly review four phases of the evolution of education of the health professions:

The first phase was a change from apprenticeship and guild to institutionalized education; second, was the strengthening of the scientific base of practice; third, was the controlled environment for clinical training; and fourth, the integration of education of the several disciplines. The fourth phase is a relatively recent innovation.

Up to 1967, the College of Optometry of Ontario was located at a Health Sciences Centre which contained the University of Toronto's School of Medicine, Faculty of Dentistry, College of Pharmacy and School of Nursing and a host of other health related programs. What was Optometry's experience in that Health Sciences Centre? Our experience can be expressed in Dr. John Evans' words,[1] "The educational programmes for the different professions operate in splendid isolation even though they may be grouped physically in one location and share common academic and clinical facilities."

The current concept of what a Health Sciences Centre should be, and Evans says it is rarely demonstrated in action, is a conjoint planning and execution of programmes of interdisciplinary education, research and patient care.

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What are the objectives of Interdisciplinary Education?

At a recent conference on this topic at the McMaster University Health Sciences Centre, an interdisciplinary group agreed that they could endorse the following objectives:

1. The opportunity to share the collective human and material resources of the university which are contributory to a high quality preparation in basic and health sciences, and to bring these resources to bear appropriately within programmes specifically designed to produce a personnel capable of practicing the full scope of the profession for which they were trained. The programmes should include a core of common knowledge on human growth and development, the roles of health care professions, the organization of health care and the health care system.

2. An interdisciplinary health education program should provide students with opportunities to observe role models of the various professions in active practice settings. This should include the opportunity to participate in and examine the operation of health care teams. Student teams should engage in problem solving within active clinical care programmes. Within such settings the development of interprofessional communication should be developed to its fullest capability.

3. Interdisciplinary education should provide a broad spectrum of clinical experience, including all ages from birth to death, and include consideration of the prenatal forces which influence health. The educational process should be heavily oriented toward prevention and its practice. All segments of society should be served both within the institution and, where appropriate, within the community.

4. Interdisciplinary education should provide an opportunity for development of social consciousness, development of self, and encourage the developing health professional to be a personal example of applied practice health in the broad context of total physical, mental, and social well being.

5. An interdisciplinary education should develop professionalism to the highest attainable level. That is where the necessary training is intellectual in character, involving knowledge and learning as distinguished from mere skill, where the occupation is pursued for others and not merely self, and where financial return is not the sole measure of success.

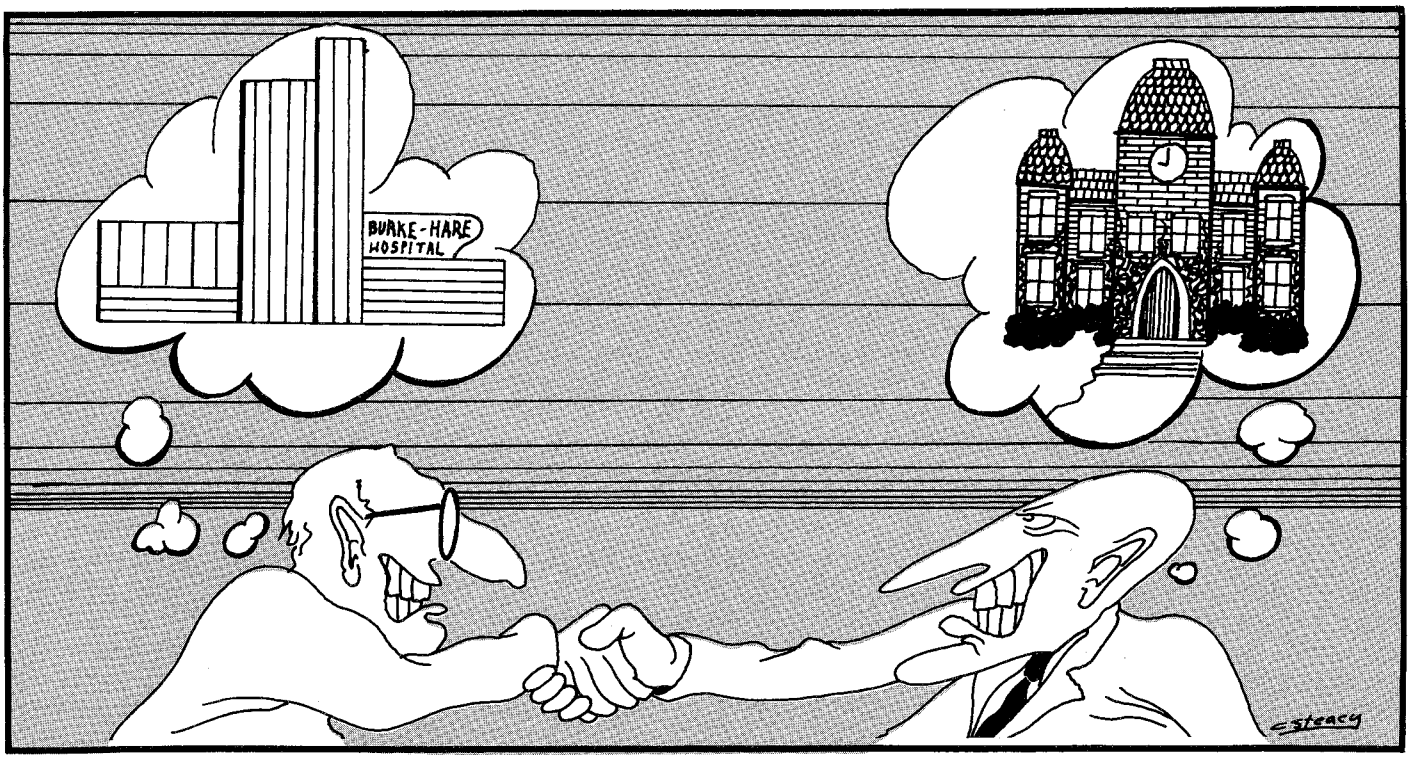
Is there evidence that these objectives are being achieved?

I am sorry to say that with the exception of a few isolated examples the McMaster Conference heard health educators from the University of British Columbia, McMaster University, The University of Sherbrooke and the University of Toronto say that these objectives were not being achieved except at the graduate level, and that health teams in the main consisted of physicians and nurse practitioners.

Dr. John Evans predicted at the time of the Waterloo Conference on Optometry and Community Health in 1970 that true team work was most likely to grow out of a sharing of clinical experience in a setting related to the activities of practice. He viewed this as more logical than a shared basic science education since it acknowledges the need for different health professions to have different educational backgrounds....

Dr. Harold Wise[2] of the Martin Luther King Health Centre in New York says a two-week programme is sufficient time to create a health care team made up of members who are competent professionals.

The cautionary words of Dr. Wesley Dunn[3], Dean of Dentistry, University of Western Ontario are worth reiteration in the context of this discussion, He states, "It is an unarguable fact that dental education and dental practice have flourished only where dentistry has an autonomous existence ... Den-



tistry has not had any particular difficulty in maintaining its autonomous status because so many of its aspects are areas of attention to which no other profession has ever directed itself ... It is only where the areas of mutuality of interest and academic and legal competence intermingle that dentistry has its unsolved problems."

Until Optometry broadens its aspects within areas of attention to which no other profession directs itself, it needs an autonomous existence.

Does this mean Optometry cannot develop an interdisciplinary education? Of course not, the School of Optometry at the University of Waterloo provides many examples of interdisciplinary activity in its clinical service delivery programmes where students presently relate to physicians, nurses, psychologists, social workers, educators and other health professions, and includes activity in five hospitals.

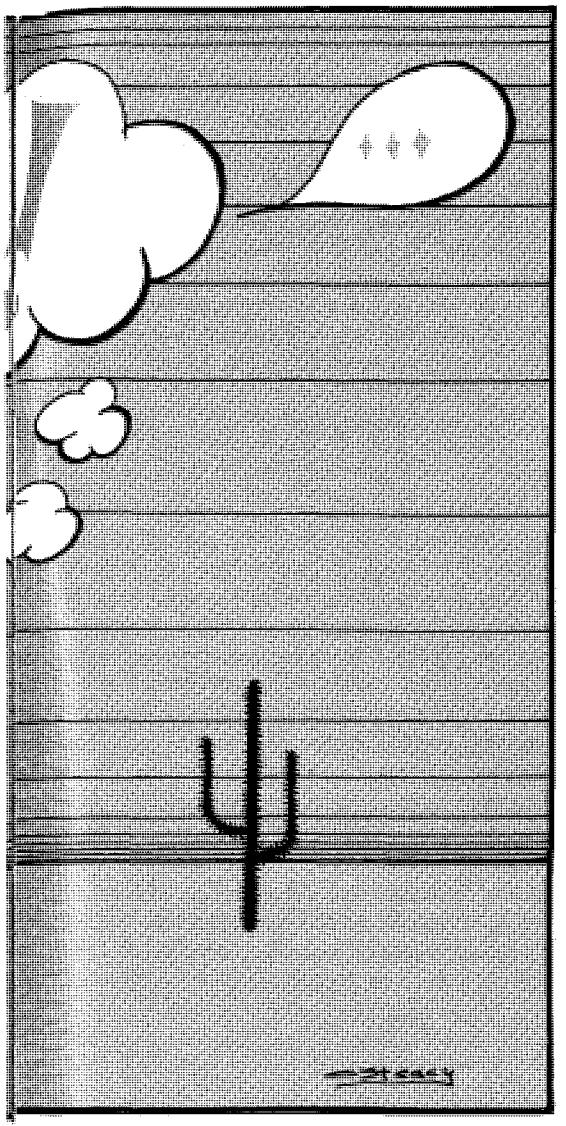
The faculty were instrumental in founding a Regional Allied Health Disciplines Committee and faculty members teach nursing students and special education teachers; they provide seminars to a variety of health related professionals as well as to the public. The School's academic programme utilizes physicians, psychologists, social workers, educators and other health workers as teachers. The School's relationship with the Health Sciences Centre of McMaster is an active and exemplary experience in interdisciplinary activity.

The major element in the development of educational programmes with a strong interdisciplinary content is adequate financing. The transformation of the College of Optometry of Ontario into the School of Optometry of the University of Waterloo with the resulting improvement of financial support has permitted the development described. This event is an illustration of the second phase of a health professions educational revolution; the optometrists' profession now has access to the resources of the University and its resources in science. It is the University that is the key to such development, and not access to other Health Sciences Schools

even though they may seem to us to have always been a part of the University. Recall, if you will, that until the Flexner Report[4] on Medical Education of 1910 the majority of North American Medical Schools were proprietary and that this educational system resulted in a state of medical care that provided only an even chance that a visit to a physician would harm or help. The move of Medical Schools to the Universities changed all that. It is the resources of the University that Optometry must have to continue to evolve.

It suggest that the planners who would, on the basis of a single American Model, (The School of Optometry at the University of Alabama, which is itself only in the development phase) make all new Schools a part of Health Sciences Centres should pause and examine both the interdisciplinary and intradisciplinary activities of an existing success story—The School of Optometry, University of Waterloo.

A major question for our profession which would arise as a result of such an examination is; Does Optometry wish to develop along the lines of the Medical System of Western Society? In his book "Doctors and Healers," Alexander Dorozynski says "... a stereotyped approach (to health care) has almost universally been adopted that hampers effective health care delivery in much of the world. The stereotype is that of the Western Medical system, which prevails no matter what a country's social or economic condition, political system, or religious beliefs ... there is a virtual monopoly concerning health care delivery and that monopoly does not always serve the best interests of all people. Other methods of health care delivery can be not only more effective ... but also much less costly than those corresponding to the pattern



setbythemedicalestablishment."[5]

Canada's Minister of Health, Marc Lalonde, has issued a working document "A New Perspective on the Health of Canadians," which expounds and amplifies a similar theme.[6]

Thus, in considering the University, wherein the Optometric education of the future will occur, we may do well to consider an environment where wellness, prevention and care receive the prime consideration, and where to cure is perhaps considered as an antidote when prevention and care have failed. I believe the University of Waterloo School of Optometry offers a model with a difference.

You asked me, "How do I stand on Optometry within an Academic Health Centre?" Well brother, if, when you say Academic Health Centre, you mean, that university centre of learning with facilities for training young women and men to serve their fellow man, and where such training has a broad scientific base in which all professionals are versed according to their need, and where the respect of one profession for another is encouraged through an understanding of their common stem of knowledge; if you mean a group of health professional schools within which each professional entity receives an assured budget which permits growth and development of programmes of teaching, clinical service delivery and research sufficient for its current operation and future evolution in response to public need, and where expensive facilities are provided for the use of all in sufficient quantities to provide access compatible with need.

And, if you mean that collected entity of clinical services wherein each profession, according to its needs, has access to a broad spectrum of clinical problems encompassing all age groups and ethnic components of society as well as offering vast experience in community health care delivery systems.

And, if this institution exerts vigorous effort to involve all professionals in teamwork promoting health and prevention of illness, and stresses care as being equally as important as cure; and, within such a framework the faculty of one discipline offers knowledge of various professional roles and concrete examples of role models through work within teams and by promoting teamwork to accomplish clinical service delivery.

And, if in the course of this work all faculty members work to solve the interprofessional problem and promote communication; and if the centre adopts the concept of lateral and upward mobility based on competence and ability of task performance; and if because of the Centre's vast prestige and access to government, (since it is, financially at least, a creation and creature of government) it plans and implements programmes which integrate its constituent professional schools into the delivery of health services and health maintenance of society, then I am for it.

However, if when you say Academic Health Sciences Centre you mean a collection of Medical, Dental, Nursing, Pharmaceutical, Optometrical and other professional schools wherein medicine and medical care dominate and control the budgetary appropriations leaving lesser amounts for those groups considered by a medical administration to be marginal in the cure of illness; and where basic science knowledge is delivered to students without regard for an individual profession's requirements in breadth, depth, or extent; and as a means of economizing on academic manpower and laboratory resources.

And, if you mean a centre wherein each group stands in splendid isolation; in rank order, within a hierarchy continuing to inculcate its chosen students so as to provide a continuity of the existing health care establishment, and if you mean an institution where the acute care hospital is the central focus within which only the medical faculty admits its patients and controls access to patients, and where patients are in reality the property of specialist medical practitioners who feel that student contact with patients constitutes a problem and inconvenience for themselves and the patients, and where a large percentage of the professional community does not have access to the facilities with the result that the spectrum of patients encountered by students does not represent any real proportion of health problems which the community or society will ask or expect graduates to solve.

And, if the institution's policies and programmes are a continuation of the medical model which permits physicians to do all tasks in health care and through legal proscription inhibits lateral or upward mobility of others despite their possessing specific training and even greater knowledge and competence, and if there is a failure to plan and implement a health service delivery system within which all professions are utilized to capacity to provide role models for students to experience.

And, if the centre with all of its resources fails to provide patient loads of the broadest variety of problems because it cannot overcome political problems with the professions and the society, and therefore fails to lead in the integration of health resources within the community in which it resides.

Continued on page 158

CLASSIFIEDS

DIRECTOR OF DIVISION OF VISUAL SCIENCES—**The Pennsylvania College of Optometry** is seeking a person with a Ph.D. in the area of Visual Sciences (physiological optics, experimental psychology with emphasis in vision, or other appropriate training) and with past experience as a visual science educator and researcher with knowledge in health professions education to direct the Division of Visual Sciences. *Responsibilities:* Curriculum design, development and coordination, and teaching in the College's Division of Visual Sciences. Curriculum responsibilities will be in physiological optics, geometric, physical, and ophthalmic optics, biostatistics and psycho-physical methods, sensory modalities and related topics. Personnel and budgetary management skills are also required.

The person selected will hold the rank of Assistant, Associate, or Full Professor together with the administrative position of Director of the Division. Salary will be commensurate with qualification and experience. A comprehensive program of fringe benefits is provided by the College. Interested persons should send their curriculum vitae and the names of three professional references to Dr. John B. Siegfried, Ph.D., Chairman, Faculty Recruitment Committee, Pennsylvania College of Optometry, 1200 W. Godfrey, Philadelphia, Pennsylvania 19141.

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Southern California College of Optometry announces the immediate availability of a full-time clinic faculty position. Applicants should have considerable work experience in clinical optometry, a strong academic background, plus interest, training and/or experience in expanding optometric involvement in multidisciplinary clinics Position involves clinical supervision and teaching of students, development and supervision of clinical services in community outreach clinics, and implementation of optometric training programs in organized health delivery systems. Salary depends upon qualifications. Applicants should write or call: Dr. Charles Abel, Chairman, Personnel Committee, Southern California College of Optometry, 2001 Associated Road, Fullerton, California 92631.

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DIRECTOR OF DIVISION OF PROFESSIONAL STUDIES—**The Pennsylvania College of Optometry** is seeking an optometrist with graduate study and/or extensive practice experience, with past experience as an optometric educator and knowledge in the area of primary optometric practice to direct the Division of Professional Studies. *Responsibilities:* Curriculum design, development, coordination, and teaching in the Colleges' Division of Professional Studies. Curriculum area responsibilities will be in optometric history and philosophy, general optometry (theory, methods, diagnosis, and treatment), general pathology, diseases of the eye, contact lens practice, low vision binocular dysfunction, pediatric optometry, optometric public health, environmental optometry, and practice and office management. Personnel and budgetary skills are also required.

The person selected will hold the rank of Assistant, Associate, or Full Professor together with the administrative position of Director of the Division. Salary will be commensurate with qualifications and experience. A comprehensive program of fringe benefits is provided by the College. Interested persons should send a curriculum vitae and the names of three professional references to John. B. Siegfried, Ph.D., Chairman, Faculty Recruitment Committee, Pennsylvania College of Optometry, 1200 W. Godfrey Ave, Philadelphia, Pennsylvania 19141.

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Illinois College of Optometry: Qualified optometric teachers needed to serve as clinical staff doctors, supervising and teaching optometric interns, full- and part-time. Professional practice experience necessary. Please write or phone for interview. Dr. Derrald Taylor, Director of Patient Care, Illinois College of Optometry, 3241 S. Michigan Avenue, Chicago, IL 60616, Phone: 312-225-1700.

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Pros & Cons

Continued from page 157

And, if the University teaching hospital is the major resource for clinical training, and its concentration is on the problems of acute illness, and it thus fails to provide multiple contacts with the more frequently occurring but less exciting problems, those which constitute the majority of health problems; if the centre fails to incorporate in its programmes the shift in emphasis from the cure of illness to the promotion of health care and prevention of illness; if the centre fails to promote its philosophy with government in such a manner as to enable its graduates to utilize their skills for people in the most extensive and beneficial way, originating in the process exportable programmes of prevention, care and cure, then I oppose it.

That is my stand. I will not retreat. I will not compromise. •

Reprinted Courtesy of the Journal of the Canadian Optometric Association.

Footnotes

1. Evans, J. R., The Health Sciences Centre—Current Concepts and Future Possibilities, *The Canadian Journal of Optometry*, Vol. 32 No. 1, June 1970. pp. 35-38.
2. Wise, H., Educating Health Professionals to Teach and Deliver Health Care in Teams. Address to: Interdisciplinary Health Care Conference, McMaster University Health Science Centre, May 15, 1975.
3. Dunn, W. J., Evolution and Integration of Health Manpower, Ibid 1—pp. 39-42.
4. Flexner, A., Medical Education in the United States and Canada. A report to the Carnegie Foundation for the Advancement of Teaching Bulletin, No. 4, 1910.
5. Dorozynski, A., Doctors and Healers. International Development Research Centre, Ottawa, Ontario, 1975.
6. Lalonde, M., New Perspective on the Health of Cnadians, Health and Welfare Canada, Information Canada, 1974.

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

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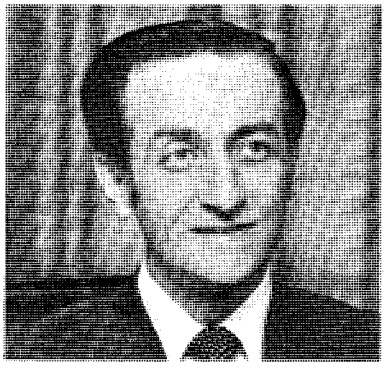

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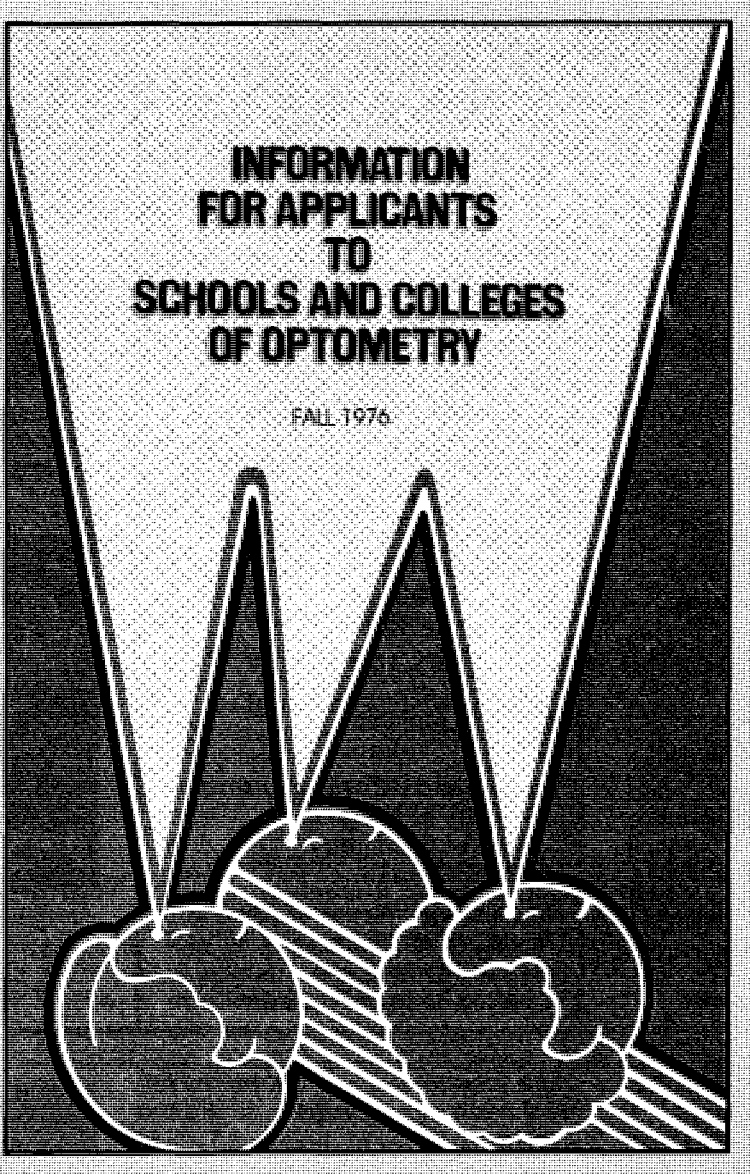

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