

# **The JOURNAL of the AMERICAN COLLEGE of DENTISTS**

**Dental Unions**

**A Dental Examiner Views  
Dental Education**

**Collaborative  
Clinical Trials**

**Academic Achievement  
and National Boards**

**Audiovisual Materials**

**JULY, 1973**



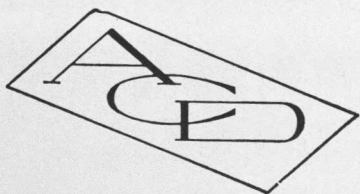
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## NEWS AND COMMENT

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*Section news announcements and items of interest should be sent to the Editor, Dr. Robert I. Kaplan, One South Forge Lane, Cherry Hill, New Jersey 08034.*

### **Quarterly Newsletter Reestablished**

After a lapse of a number of years, The Board of Regents has directed that the College resume publication of a newsletter. Titled "News and Views" the publication will appear quarterly, in February, May, August and November, between issues of the Journal. It will be devoted to the promotion of the Objectives and Purposes of the American College of Dentists, will present news of executive office and administrative activities and will promote the interests of professionalism in dentistry. An important feature will be a periodic opinion poll on issues of concern to the profession. Comments and opinions are welcomed by Executive Director Robert J. Nelsen.

### **Mississippi Offers Continuing Education Credits for SACED Participation**

The Mississippi Dental Association has informed the American College of Dentists that it will allow continuing education credit for dentists in that state who take part in the Self Assessment and Continuing Education Program sponsored by the College. Five states now grant such credit. Although the first quarterly test has been mailed, and the second will go out in July, enrollment is being kept open for an indefinite period for those who wish to avail themselves of its benefits. Those interested may still join by sending \$40. to the Educational Testing Service, Princeton, New Jersey.

## SECTION NEWS

### Oklahoma Section

The annual meeting of the Oklahoma Section of the American College of Dentists was held recently at the Fairmont-Mayo Hotel — Tulsa.

Chairman Marion Flesher presided. John Wilson, President of the Texas Dental Association, was a guest. Harry H. Sorrels reported on successful completion of the joint ACD-ICD Oklahoma Dental History book project. The remaining copies of "Open Wider Please" by Stanley Clark were purchased from the University of Oklahoma Press at cost. Fellows of both colleges contributed funds for this purchase. The books are available to anyone related to the profession. Dr. Robert Hansen reported on the disposition of the library accumulated by the section and donated to the University of Oklahoma College of Dentistry. A reference library has been established, the remainder classified as to discipline and made available to faculty members. Duplicates are kept for trading stock. The balance has been sent to the Health Center Library for filing.

An appropriate award to be presented to a graduating senior at the University of Oklahoma College of Dentistry was discussed. The matter was tabled pending discussion with the faculty as to the best approach to this project.

Officers for 1973-74 are: John B. Carmichael, Woodward, Chairman; Charles Kouri, Chelsea, Chairman-elect; and Larson R. Keso, Oklahoma City, Secretary-Treasurer.

The next annual meeting will be held in conjunction with the Oklahoma State Dental Association annual session in Oklahoma City, April 1974.

New fellows, Joe A. Teaff, Muskogee, and E. W. Foster, Oklahoma City, were introduced.

### New York Section

The New York section of the American College of Dentists held a joint meeting with the Western New York section at the Hotel Syracuse on May 6th, in conjunction with the State Dental Meeting. Our former chairman, William Hudson, represented our section at the meeting. The slate of new officers for the New York section has been announced. They are: Andrew Linz, Chairman; Michael Turoff, Vice Chairman; and Charles Hillyer, Secretary-Treasurer.



### Colorado Section

Ray G. Perschbacher of Denver, received the 1973 Annual Award during a recent meeting of the Colorado Section of the American College of Dentists in Denver. Dr. Perschbacher has long been active in affairs of the dental profession, and received the award for his "exceptional contribution to the scientific advancement of dentistry."

He is a past president of the Metropolitan Denver Dental Society and is a member of the Council on Research and Education of the Colorado Dental Association. He is serving presently as president of the Colorado State Board of Dental Examiners and treasurer of Colorado Dental Service.



Miles R. Markley, left, presents the 1973 Annual Award to Ray G. Perschbacher, right. Ernest T. Klein, center, is immediate past president of the Colorado Section.

### Michigan Section

The Silver Jubilee celebration of the Michigan Section was held in April at the University Club in Detroit. The principal speaker was William E. Brown, dean of the University of Oklahoma School of Dentistry and immediate past president of the American College of Dentists, who gave an interesting address on dental education to the assembled Fellows and their wives.

Five new Fellows were welcomed into the Section. They are Eldon D. Bailey of Midland, Raul G. Caffesse of Ann Arbor, Robert B. Cornwall of Southfield, Henry E. Ebel, Jr. of Detroit and Richard H. Gilmore of Saginaw.

Section officers for 1973-74 are: Chairman, William T. Quinn of Detroit; Vice chairman, Robert E. Coleman of Grosse Pointe; and Secretary-Treasurer, N. Weir Burkman of Birmingham.



Michigan officers, (left to right) Henry L. Homan, immediate past chairman; N. Weir Burkman, secretary-treasurer; William T. Guinn, chairman; and Robert E. Coleman, vice chairman.

### Washington — British Columbia Section

The Washington-British Columbia Section met in Seattle on May 20. Among the guests were Richard Lindstrom, president of the Washington State Dental Association, Mrs. Lindstrom, and the College Executive Director, Robert J. Nelsen. Doctor Nelsen addressed the group briefly, bringing us up to date on recent developments within the College. Doctor and Mrs. Harold Kramer of

*(Continued on Page 193)*



# the JOURNAL of the AMERICAN COLLEGE of DENTISTS

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A QUARTERLY PRESENTING IDEAS IN DENTISTRY

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WALTER H. MOSMANN DALE A. HILLS

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# New Regents of the College

## GORDON H. ROVELSTAD

Captain Gordon H. Rovelstad, pedodontist, writer, and lecturer is head of the Research Branch of the Dental Division, Bureau of Medicine and Surgery, U.S. Navy.

Born in Elgin, Illinois, he earned D.D.S., M.S.D. and Ph.D. degrees at Northwestern University Dental School. He practiced in Elgin and in Chicago for nine years, during which time he taught at Northwestern, then went on active duty with the First Marine Division in Korea. He has held various posts with the Navy ever since.

Captain Rovelstad is a past president of the International Association for Dental Research, past president of the American Board of Pedodontics, a fellow and councillor of the American Association for the Advancement of Science, and a former board member of the American Academy of Pedodontics.

He is the author of a large number of published articles and has lectured widely. He is a member of Omicron Kappa Upsilon Honorary Dental Society, Sigma Xi, and the New York Academy of Science.

He received the Meritorious Service Medal and the Legion of Merit Award from the Navy. He is also the recipient of the Thomas P. Hinman Memorial Medallion, and the honorary degree of Doctor of Science from Georgetown University.

Captain Rovelstad and his wife, Barbara, have three children. They reside in Potomac, Maryland.



## DALE A. HILLS



Regent Dale A. Hills, a general practitioner of Minneapolis, has had many years of service to local, state and national dental organizations. Born in Loyal, Wisconsin, he studied dentistry at Marquette University in Milwaukee. During World War II he served in the Dental Corps of the U.S. Army.

Entering practice in Minneapolis, he joined the Minneapolis District Dental Society and held a number of committee appointments, before rising to the presidency in 1957. Similar activity in the Minnesota Dental Association led to his being chosen president in 1964.

On the national level, Dr. Hills served five years in the House of Delegates of the American Dental Association, was a member of various reference committees and served as a member and later chairman of the Council on Dental Education. He is past president and currently treasurer of the Delta Dental Plan of Minnesota.

He has presented a number of papers to dental groups in Minnesota, and was recipient of the WCCO Good Neighbor Award. He is a member of Psi Omega dental fraternity, the Federation Dentaire Internationale, and has been active in the American Legion, the Robbinsdale Lions, the Robbinsdale Chamber of Commerce and the Peace Lutheran Church.

His hobbies are hunting, fishing, bowling and golf. Dr. Hills and his wife, Elizabeth, have one married daughter.

# Annual Meeting and Convocation

## Rice Hotel, Houston, Texas

### *Program*

Friday, October 26

1:00 — 7:00 p.m.      Registration . . . . . Grand Foyer

8:00 p.m.      Orientation and  
Indoctrination Program . . . Crystal Room  
Social Hour to follow

Saturday, October 27

9:00 a.m.      General Meeting . . . Colorado-Brazos Rooms  
Welcome . . . . . Ormonde J. McCormack,  
President

Reports of Officers

Address . . . . . Louis G. Terkla,  
President-Elect

9:45 a.m.      Panel Discussion

PROFESSIONALISM — FACT OR FANTASY  
WHO NEEDS IT?

12:15 p.m.      Luncheon . . . . . Crystal Room

3:00 p.m.      Convocation . . . . . Grand Ballroom

Address by the Reverend Charles L. Allen,  
Pastor of the First Methodist Church,  
Houston Texas

7:00 p.m.      Reception . . . . . Crystal Room

8:00 p.m.      Dinner and Dancing . . . . . Grand Ballroom

Music of Ed Gerlach Orchestra

Entertainment by the College Singers



# Professionalism – Fact or Fantasy – Who Needs It?

9:45 a.m.

Panel Discussion

Colorado-Brazos Rooms

Charles F. McDermott, D.D.S., Moderator  
Regent, American College of Dentists  
Pittsburgh, Pennsylvania

## THE NATURE OF PROFESSIONALISM – ITS VALUE TO SOCIETY

Robert J. Nelsen, D.D.S.  
Executive Director, American College of Dentists  
Bethesda, Maryland

## THE PROFESSIONAL MISCONDUCT OF INDIVIDUALS

Richard S. Youngs, D.D.S.  
Immediate Past President, Michigan Dental Society  
Adrian, Michigan

## THE PROFESSIONAL MISCONDUCT OF ORGANIZATIONS AND AGENCIES

David H. Ehrlich, D.D.S.  
Chairman, Pittsburgh Section, American College of Dentists  
Pittsburgh, Pennsylvania

## HOW THE LAW LOOKS AT DISCIPLINARY PROCEDURES AVAILABLE TO PROFESSIONAL SOCIETIES

George D. Webster  
Chief Counsel,  
American Society of Association Executives  
Washington, D.C.

## CURRENT CHALLENGES TO THE PROFESSIONS IN AMERICA

James D. Maloney  
Chairman, Board of Ethical Review,  
National Society of Professional Engineers  
Washington, D.C.

# *Editorials*

## The Dental Profession and Unions

We live in a time of frustration and discontent. The rising tide of consumerism and the emergence of certain self-appointed experts have made it popular to blame the health professions for the so-called health care "crisis." Statistics are cited to indicate that medicine and dentistry are not meeting their obligations to the public. The federal government which had gone to some length to show that there is a deficiency in health manpower, then proceeded to cut back the funds which would help to alleviate the shortage.

Is it any wonder then that some professionals get a bit paranoid as they witness themselves under attack from many sides. Dentists have been charged with incompetence and accused of fraud, called racist, self seeking, practitioners of a cottage industry, the last of the entrepreneurs. Yet the dental profession is urged to work harder, produce more dentists, and find ways of providing dental care for everyone or suffer the consequences. "Big brother" appears to be waiting in the wings, ready to step onstage and bring all of the health professions under federal control.

It is understandable, therefore, that some dentists, casting about for relief, have accused dental organizations of failing to defend their best interests, and have turned to the labor union movement as a potential savior. They are impressed by the benefits that collective bargaining has brought to trades and industries, and they are willing to embrace unionism as the answer to their problems, as a means of fighting back.

In their haste for quick solutions, they fail to realize that they may be jumping out of the frying pan into the fire.

To begin with, there appears to be no legal basis for a group of self-employed individuals to form a union. Dentists by and large are independent contractors, and no recognizable employer-employee relationship exists. Dentists who are employees of state and federal

agencies, industries or institutions can, of course, join unions for the purpose of collective bargaining for salaries, working conditions and other benefits. Under certain circumstances they may engage in strikes against their employers. Self-employed dentists, however, have no one to strike against except their patients. No sensible person will find any justification for such a course of action.

Dentistry is a profession and not a trade. Although its early origins were deep rooted in commercialism, the efforts of many of its leaders, teachers and scientists have elevated dentistry over the years to its present position as one of the most respected of the health professions. In the development of ethical concepts, its practitioners have accepted the principle of service before self. This is the badge of the true professional. The tradesman, on the other hand generally places his own interest foremost.

Dentists have traditionally bound themselves together in organizations, but the objectives of these groups has been the advancement of learning and the improvement of oral health service to the public. To repudiate these objectives by taking the attitude that the time has come to place the dentist's interest first turns back the tide of our history.

We must recognize that in joining a union we will surrender our independence and the right to regulate our own affairs. In allowing others to make decisions for us, we could lose all the public regard we have won and the right to be considered truly professional persons.

Trade Unionism is not the answer to our problem. The real solution will be found in strengthening all levels of our voluntary dental organizations. Instead of standing idly by and carping at our leaders, it is necessary, even urgent that we have as total participation as possible in association activities. In this way we will be truly united and will speak in one strong voice. We may not be completely enchanted with our local, state and national dental organizations, but they are the best ones we have right now. If we expect to maintain our professionalism against all forms of intrusion, governmental and otherwise, we must reinforce our present associations rather than defect for illusory benefits.

R.I.K.



## Dental Unions – Our Trojan Horse

The great and seemingly impregnable city of Troy was destroyed by Greek soldiers who by cunning and guile had been brought into the city while hiding in a huge wooden horse. The analogy of any enemy within the midst of dentistry's hard won structure of respectability and professionalism is quite appropos at the present time. I am referring to the beginning movement of dental unions. I think it is time for some blunt talking and frank self-assessment about the direction that certain segments of today's dentistry are taking.

George Santayana said it so well, "Those who cannot remember the past are condemned to repeat it." Have we already forgotten the past when dentistry was considered to be but a trade, or, the era of the advertising dental parlor, whose sole purpose was to make money? Would you be willing to return to those times? That is the basic threat of the union movement, for no matter under which guise it may present it self, its essential nature is self-interest. The one lesson we have learned and must never forget is that our firmly established traditional ideals of service to the public are sacrosanct.

The evidence abounds that our profession is constantly striving to increase our knowledge, our technical skills, and the total quality of care to our patients. We have worked too hard and too long to establish this model of excellence to now see it threatened by a group of self seeking persons whose *modus operandi* is synonymous with the tradesman rather than the healing science professional.

Most dentists have earnestly accepted the title, "doctor," as a serious and solemn charge to do the very best for their patients. If occasionally we fail, it is not for an honest and sincere lack of effort. We must, therefore, look with suspicion on any philosophy that advocates material gain before the welfare of the patient.

Now the proponents of dental unions are pompously sounding off about justice and equity for dentistry, yet no matter how their language is couched, it seems apparent what they are negotiating (or trying to negotiate) is simply more dollars in their pockets. In spite of the euphemisms they may employ, what they are really saying is, "I come first." Such a doctrine is anathema to our professional concepts of honor, integrity and service.

The president of a dental union group called, "International Federation of Health Professionals," has had the temerity to state, "we (meaning dentists) have been the victims of society." Sober and mature reflection exposes such a statement as patent nonsense. The charge that the dentist or the profession has been "the victim of society" is not only unseemly, it is obviously untrue. In all honesty, even though painful to admit, some consumer-patients have been the victims of dentists rather than the other way around.

Dentistry has had a rich and varied history, most of it noble and altruistic. On balance, its integrity and goodness far outweighs its venalties. Today's dental school administrators, teachers, researchers, and clinical practitioners are assiduously working to make it always better. This is no time to throw it away on a mess of union pottage!

Our legacy of dignity, respectability, and service is now of inestimable worth. Any dentist who does not totally feel that the welfare of the patient comes before other considerations is recklessly squandering this precious legacy, and once lost it will be nigh impossible to regain. Anyone holding a medical or dental degree who is willing to bargain, compromise, or threaten to strike against the principle that the public good is paramount, ought not to be a member of the healing arts at all, for such an attitude is the anthesis of the Hippocratic ethic.

Dentistry, as a part of a total life, provides its fullest rewards (both emotionally and materially) when there is more giving than taking. In the evolution of dental science, it has become readily apparent that what was best for the patient and the public ultimately was recognized as being best for the dental profession.

We are today beset by many outside forces. It will take all the intelligence, wisdom, foresight, integrity, goodwill, and justice of our members and leaders to circumvent non-dentists from taking over and controlling the destiny of American dentistry. Surely we do not need any shortsighted and selfish forces from within our ranks, as exemplified by the dental union movement, to wreak havoc on our hard won esteemed profession.

Dentistry in America can become the quintessence of lofty accomplishment for the common good if we will continue to accept our moral and technical responsibilities. It will surely be shamed and destroyed if money becomes more important than people. Will we honor the ideals of Hippocrates and Fauchard, or succumb to the spirit of Mammon? At this crucial crossroad in time, the choice is squarely up to us.

Stanley R. Korf

# A Dental Examiner's View of Dental Education\*

CLEMENT C. ALPERT, D.D.S.†

I accepted the kind invitation of the Council to talk to you today about dental education knowing full well of my limitations since, as you all know, I am not an educator. However, as an examiner for licensure with almost fourteen years of experience in observing and judging clinical performance skills of the recently graduated dental student and because of my exposure to the problems of dental education, I have been able to make many observations and have drawn some conclusions. I would like to share these with you now at this annual conclave of educators and examiners which traditionally has been a time when problems are acknowledged, innovations suggested and criticisms voiced. The great strides forward recently made both in education and licensure would most certainly not have been accomplished without the benefit of the ideas which have germinated here at these meetings. I hope this paper shall in some way also serve the profession in a similar manner to help further the advancement of the processes of dental education.

Perhaps the best way to start is to define dental education. What do we try to achieve, what is the goal, what should the finished product—the dental graduate—be like? In the "Procedures for Evaluation Requirements and Guidelines for Dental Education Programs," the Council on Dental Education stated the following under curriculum: "Each dental school will be judged finally not by its conformity to type—but rather in terms of achievement of its own stated aims and objectives which should lead to a graduate qualified

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\*Presented at the Conference of Dental Examiners and Dental Educators, February 11-12, 1972, Chicago, Illinois.

†Member, Northeast Regional Board of Dental Examiners



to practice dentistry.”<sup>1</sup> In other paragraphs the following statements are made. “Accreditation of its very nature, must be flexible and yet provide a self-imposed educational mechanism to insure the competency of the graduating dentist;”<sup>2</sup> and “In general the Council will expect a dental school to refine its evaluation of the total program to assure a satisfactory level of competence on the part of the graduating dentist.”<sup>3</sup>

The Progress Report of the Ad Hoc Committee on Curriculum of the University of Pennsylvania School of Dental Medicine notes, in its suggested solutions to the problems of dental education, “that the fourth year continue therapeutics and clinical practice at a mature intellectual level leading to those total competences which are the hallmark of the master clinician.”<sup>4</sup> New York University, in describing its newly constituted curriculum, states that “the school is dedicated to train highly qualified, socially conscious, dental practitioners.”<sup>5</sup> I believe that the last two statements more accurately describe and define the objectives of dental education in terms of the level of achievement I would desire of a student when he graduates from school. The quality of the delivery skills—the degree of ability to treat the patient—is placed on a high plane. Skills are to be developed well above minimum levels. It is assumed that the graduate is, therefore, able to employ these skills in the basic procedures necessary in the delivery of total dental health care to the public.

The dental examiner, when conducting an examination to determine the clinical competence of the applicant, should evaluate on the same basis. Has the candidate mastered a degree of skill and judgment that will permit him to work on the public and deliver a quality of dental care equivalent to that of the highly skilled or master clinician? Perhaps this high level of competence is too much to expect after only a basic education on the undergraduate level. The Survey of Dentistry suggests “one of the objectives of clinical teaching in dentistry should be to give students an adequate basic understanding and proficiency in treating patients so that they may continue to improve their skills in practice.”<sup>6</sup> This last definition might be more realistic and the one which could be taken by the boards in their evaluation of the delivery skills of the recent graduate. Indeed, let us take this last definition as minimal in requirements and use it as a yardstick for our evaluation of the licensure candidate.

What have we found? Experience, over the past fourteen years, has led me to the conclusion that the majority of average board applicants exhibit poor clinical skills. We rarely see an operator who

has attained the degree of skill characterized or identified as a "highly skilled" or "master clinician." I have often commented that Board examiners have the depressing duty, in the main, of separating the poorest from among the poor. The thrill of observing superior delivery skills unfortunately comes to us all too infrequently. We are well aware of the fact that the applicants have had a fine training in the basic sciences, and that they are well-schooled in philosophies and techniques of delivery procedures. They have made acceptable records in their National Board examinations and seem to respond intelligently when interrogated in the clinics in oral exchanges. But the final phase of their training, the utilization of all this knowledge in the delivery of actual treatment to the patient, seems to be lacking and not up to acceptable standards.

This observation has not been made or expressed by me alone. The Survey of Dentistry states: "The average degree awardee is unprepared to meet all the demands for total patient care in private practice."<sup>7</sup> Indeed, faculty members on all levels; Deans, Heads of Departments and even the young clinical instructors freely admit to this low level of achievement in the graduating class. Recent graduates frequently admit to the fact that their delivery skills were minimal upon graduation and wished they were higher. Last month, I had a discussion in a dental school with about a half dozen young faculty members who were unanimous in this opinion. A poll taken of five-year graduates notes: "In general, the 1956 graduates would prefer that the dental curriculum provide students with broader experience in clinical dentistry."<sup>8</sup> The report of the University of Pennsylvania states: "the committee is convinced that although the majority of students may not require additional clinical experience, that for many students it will be of great benefit. However, regardless of the number of students concerned, the committee feels that experimentation in means to improve clinical skills is urgently needed in dental medicine."<sup>9</sup>

The N.E.R.B. has recently published a set of guidelines to use in order that their examiners' judgments in clinical examinations all have the same weights. This is an attempt on the part of the Board to try to standardize the decisions of the examiners so as to arrive at an equitable grading arrangement. This set of guidelines simply expresses the emphasis placed on the various steps which make up the whole process of a complete clinical treatment. The requirements are nothing more than what should be expected by the faculty in the school. Although these requirements represent individual technical skills, they must be mastered in order to deliver comprehensive

dental care of which they are a part. Nevertheless, if the guidelines are followed and decisions made in strict observance of these rules, the rate of failures would go up considerably. One combined guess of a faculty member and myself is that as many as 40 per cent of the candidates might not pass the operative examination. We cannot condone this level of achievement for we know that "preventive dentistry can be practiced in its fullest sense only when it includes excellent restorative dentistry."<sup>10</sup> The rate of failure in the prosthetic section would also increase considerably.

What are the reasons for this low level of achievement? Perhaps, it is the inferior teaching and lack of relevance in the educational process. It could be lack of student motivation or insufficient clinical experience. Possibly, it is a combination of all these factors.

A review of the format of dental education is in order at this time to analyze the situation. Until recently, the four-year dental curriculum was divided roughly into two parts. The first two years were spent in the basic sciences and in the technical disciplines; in the third and fourth years, the student was introduced to and completed his training in the clinical disciplines as well as studying therapeutics etc. It was thus assumed that he attained the level of proficiency necessary to deliver health care to the public. It is the kind of education I received, and it is what students in the main have been receiving to the present date—a horizontally structured system with no flexibility of course presentation.

There are many deficiencies in this system. It is assumed, for one, that all students learn at the same rate. Little or no provisions were made for students to progress at different rates according to their learning skills. There was no mechanism set up to help the slow achievers with special instruction and more clinical training. It was also assumed that after a certain number of procedures in each delivery skill were accomplished—that is, a fixed number of restorations, dentures, root canal treatments, inlays, foils etc.—the student had acquired sufficient skill and judgment to perform on the public without supervision. It is interesting to note that compared to other professions and the arts, dental education requires comparatively less training in the delivery skills and assumes these skills will be developed and enhanced after the graduate is already working on the public. It is erroneous and wishful thinking to believe that such continued development of skills will always take place. We all know that the acquisition of additional knowledge and skill becomes much more difficult post graduation.



In music and art, the students spend hours on-end practicing delivery skills concurrent with learning the theoretical aspects of their education. In the medical profession, there is a system of internships and residencies during which the graduate continues his education under supervision so that when he starts to treat the public, he has attained a high degree of clinical skill. Even in the game of golf, one must practice hitting the ball many hundreds of times before mastery of the game is attained. And this is only a game! In dentistry, this experience does not take place; it is my opinion that the average student does not have enough exposure to and practice in the delivery skills to have sufficiently mastered them. It is also discouraging to note that due to changes in the emphasis and philosophy of dental education, there has been a trend to decrease the requirements in the volume of work of the student in the delivery skills. In one school, there has been a decrease of 40 per cent over the past ten years in the amount of operative procedures required of the student. Qualitative goals have been set in some schools rather than quantitative requirements; but, without the proper amount of practice, the desired quality cannot be mastered. Ironically, students complain of too many requirements and of pressures that are too great. They feel that continued repetition of clinical procedures is unnecessary and that they have accomplished a mastery of basic skills with minimal practice. I believe students unfortunately come to realize their deficiencies only after graduation. Fortunately, most go on to acquire more skill with clinical practice. The level of competence with which they start is indeed a handicap; it is also unfair to the public they initially treat.

I am sure all of us will agree that changes are necessary. The report of the Carnegie Commission on Higher Education and the Nation's Health observes: "Policies for Medical and Dental Education is concerned with the serious shortage of professional health manpower, the need for expansion and restructuring the education of professional health personnel and the vital importance of adapting the education of health manpower to the changes needed for an effective system of delivery of health care in the United States."<sup>11</sup> It is most commendable that many dental schools have indulged in a constructive self-examination, having recognized that the problems of training dentists and dental auxiliaries exist and must be solved. It is interesting and reassuring that schools are now attempting to evaluate their teachers and teaching systems. The University of Kentucky College of Dentistry started such evaluation in 1967. The initial conferences led to the creation of a new administrative

position, the Office of Assistant Dean for Planning, Development and Evaluation. In 1969, this office had prepared meaningful questionnaires which were administered to students and faculty. The purpose was to place an evaluation on the courses taught and the instructor's ability to teach. "It was the opinion of the administration that it had a right to require that all courses be reviewed periodically, and that all faculty submit to some form of evaluation."<sup>12</sup>

Bold new concepts in teaching are being tested especially in the new schools. I am hopeful that the future students shall receive a far better education and shall have developed much greater clinical and delivery skills at graduation. I know the educators are aware of these changes; I am not so sure the examiners are. I have spent some time reviewing the descriptive literature on curriculum sent to me by various schools. It has been a great thrill to learn of what is taking place.

Here are some of the highlights.

Basic Sciences are no longer taught as separate courses. Scientific knowledge is delivered as material correlated with clinical application. Dental Biology, Behavior Sciences, Developmental Biology and Growth, Community Health are taught along with Oral Medicine, Occlusion, Chemistry, etc. Clinical exposure starts in the first year and continues in the second. In the third year, the student is immersed in a concentrated clinical experience where he is taught to deliver comprehensive dental health care as part of a team. He has constant supervision. He learns to work with his auxiliaries. Most importantly, he is able to consult with a group so that decisions and procedures are the result of the evaluation of all. I think this is a great step forward. Too many of us are the products of training in individual thinking and doing and have not had the advantage of group participation and evaluation. "Student motivation should improve and the opportunities to integrate and correlate knowledge from basic sciences with the clinical practice of dentistry should increase tremendously."<sup>13</sup>

The new programs have great flexibility because they are vertically structured. The student's rate of ability to learn is recognized. Rapid achievers can progress onward in the clinics with elective subjects. Slow achievers can remain in the clinics longer so as to adequately develop their skills. Schools are dividing the curriculum generally into four tracks: General Practice, Specialty Preparation, Basic Sciences and Research, and Social and Preventive Dentistry. When the student reaches the fourth year, he may elect the track which best suits his plans to practice.

Other innovations are being tried. One important program is that of Community Dentistry. Today, most students are seeking relevance in their education. This is being accomplished by allowing students to work in clinics which serve the community. Kentucky has had a mobile unit, administered and staffed by the students. The University of Pennsylvania buses deprived children to the Coleman Clinic daily for preventive treatment; some of its seniors are assigned to satellite community clinics. U.S.C. and U.C.L.A. have a three-chair mobile clinic operating in Ventura County. N.Y.U. and Stony Brook speak of off-campus clinical settings where students will work on the handicapped, disadvantaged and mentally retarded. Harvard is developing a center for Community Health Care with concern for delivery of health care to an adjoining heavily-populated community. Howard sends students to a clinic in a Southern state.

Dentistry has never had an internship program and these clinical experiences could be an effective substitute. This method of allowing a student to work in an extracurricular setting is of great advantage; it helps him to mature by placing him on his own, but it allows him to return to the school where the problems he encounters are answered. His motivation should be greatly enhanced by these broadening experiences, assuring the mastery of delivery of health care. I feel that all schools should become increasingly concerned with community clinics. Not only is this an aid to teaching, but it also is an excellent method to serve the needy public. This program could be expanded in some instances to the level of an elective internship for which the Federal government might grant tuition refunds or offer other forms of financial payment.

Some schools are going to a three-year program. The number of hours spent in this program will be the same as that spent in the four-year course. However, with all the new disciplines to be mastered, I doubt whether the compression of the educational process into three years will allow for adequate maturity of the student when the four-year program has produced only minimal results. Furthermore, the amount of free time at the student's disposal for recreation, reading and resting will be extremely inadequate. Is this being done to save the cost of a year's tuition, or is it because the government will give the school more financial aid under the three-year system? Does this mean that the Federal government through its aid program shall dictate the course of dental education?

If the academic program is to be shortened, let us do it in the pre-dental program. I question the necessity and relevance of some basic science courses on that level. How many are really necessary as



prerequisite to dental education? I feel that a three plus four year course is much more practical than a four plus three year course. There is more chance for and assurance that greater professional maturity will develop.

A discussion of new curriculum would not be complete without some comments on experimental programs for auxiliary personnel.

All of us are convinced that new methods of delivery must be found if the needs of the public are to be met. Today, it is accepted as fact that auxiliaries shall be permitted to perform services which would otherwise have to be done by the dentist. Students are being trained in this philosophy. To be sure, there are many procedures which could be executed by auxiliary personnel, leaving the dentist free to administer only that portion of the treatment where his skill alone will suffice.

How far do we go in such delegation of duties, or where do we stop?

A new concept of delivery is being tried experimentally in several schools. A team of auxiliaries is being trained to perform services on the public. This system, which is new to our country, will include the preparation and restoration of the teeth by members of the team. The dentist will be in attendance only in a supervisory capacity. Perhaps, the talks tomorrow about the New Zealand Dental Nurse Program will explain how such a method works.

Several questions should be raised by this time.

1. What will be the quality of the treatment delivered under such a program?
2. If the hard structures are to be cut, will cutting of the soft structures eventually be included?
3. Will technicians be working in the mouth constructing prosthetic appliances?
4. How much more of the population would be serviced by such a system?
5. Will all of this lead eventually to fragmentation of the practice of dentistry with a separate technician working on his own in each discipline?
6. Will most dentists then assume specialty roles? How will the services of this elitist cult be made available to the demanding public?

It is most disheartening to note that, in those areas where auxiliaries are used today, dental treatment has not been made available to many more people. Paradoxically, it has only served to

enable additional, more specialized and sophisticated procedures to be delivered to those same patients who are financially able to pay the ever-increasing fees.

This is an opportune time to make some observations relative to the relationships of the boards, the schools and the Council. Today, many students, as well as some educators, have been critical of the Boards. Charges of being biased, irrelevant and unnecessary have been made. It is interesting to note, in this regard, that one of the purposes of accreditation as stated by the Council is: "to facilitate effective coordination of the efforts of dental schools, dental state boards and dental societies toward maintenance of adequate standards of professional proficiency."<sup>14</sup> The necessity of taking the Board has, in many instances, stimulated the achievement of higher performance levels on the part of the students. This is especially important today when all performance standards are being lowered and pride in accomplishment is all too infrequently observed. One faculty member has stated that teaching clinical procedures would be much more difficult were it not for the fact that the student knows he must take and pass a board examination. Why take a Board, ask some, when we are graduates of a school accredited by the Council on Dental Education? The accreditation program is, indeed, to be highly commended. It serves a necessary function for the schools, the boards and the profession. Its site examinations of the schools are most comprehensive and are done in great depth. There is one area alone in which this program fails, and that is in the assessment of clinical competence; the very same area in which the school's training falls short. That this situation exists is understandable when one realizes the accreditation examination of a school takes place once in many years. During such site examinations "committee members visit the clinics and randomly examine patients being treated to get a general assessment of student performance in clinical activities."<sup>15</sup> What is being said here is that the accreditation process has no method at all of evaluating students with regard to clinical skills, and it makes very little attempt to do so.

Let us compare this situation with the Regional Board system where practically the entire graduating class is examined every year for three days. These examinations are complete procedures in treatment executed without supervision, rather than randomly observed isolated steps which are still under the guidance of the faculty. One must concede that the regional board is able to obtain a much more accurate overview of the delivery skills of the entire

student body of the school than the Council obtains in its accreditation program. In fact, this information has never before been available in the entire history of dental education. I believe that the Council should welcome and could use the observations made by the regional board. In a similar way, this unique information which the regional board acquires in testing the entire student body at one time can be passed on to the schools for their use as "outside" information in the evaluation of their teaching methods. Examiners who have had experience in testing in several sites have been able to detect startling differences both as to student achievement and techniques taught. For example, it was noted that level of achievement of an entire class in Oral Diagnosis always fell below the level of achievement of the classes of other schools. This information was passed on to the school and changes were made in that school's curriculum to upgrade the course.

In another instance, two examiners, giving a prosthetic examination at the same time, independently came to the conclusion that the school was, perhaps, teaching an inferior technique for taking an impression for a full denture. These conclusions were checked with a board certified prosthodontist who corroborated the findings. It would have been most profitable if the school had been informed; unfortunately, this was not done.

It is time for us to realize that Boards, Schools and the Council on Dental Education have a great deal to gain by having a close, intimate working arrangement with one another. Information should be exchanged for the mutual benefit of all. In this regard, I have always felt that faculty should remain in the clinics during the board examinations. They would have the advantage of observing their own students' work without supervision, and would also become acquainted with the methods and standards of grading of the examiners representing the Board. Examiners could consult the faculty for additional information, if this were necessary in assessing the ability of the students.

With a good working rapport established between boards and faculty, other valid methods of judging clinical competence by the boards might be more readily developed for the mutual benefit of all, especially the candidate for licensure.



## APPENDIX I

## NORTHEAST REGIONAL BOARD OF DENTAL EXAMINERS

## GUIDELINES FOR GRADING IN RESTORATIVE DENTISTRY

- I. Absolute Reasons for Failure Not Necessarily Connected with Preparation or Restoration
  - A. Failure to complete examination within allotted time;
  - B. Alteration of pre-operative radiograph;
  - C. Alteration of cavity preparation in a work area other than that assigned for the examination;
  - D. Receiving assistance from other than chairside assistant (dentists or dental students may not act as chairside assistants);
  - E. Preparation of tooth other than that approved by the examiner;
  - F. Cavity preparation not commensurate with size of initial carious lesion—unnecessary removal of sound tooth structure;
  - G. Failure to recognize pulpal exposure, either mechanical or pathological;
  - H. Tooth separation of more than 1 mm;
  - I. Failure to return in pre- and post-operative radiographs;
  - J. Misappropriation of equipment from testing center (theft);
- II. Errors or Omissions in Cavity Preparation Warranting a Grade of Failure
  - A. Incomplete caries removal;
  - B. Violation of the principles of extension of cavity margins;
  - C. Damaging surface of adjacent tooth;
  - D. Unwarranted trauma of supporting tissue;
  - E. Mechanical exposure of pulp;
  - F. Carious exposure without effective isolation;
  - G. Pulpal exposure prior to obtaining outline form;
- III. Errors or Omissions in Cavity Preparation Warranting a Reduction of Grade
  - A. Improper or inadequate retention form;
  - B. Improper resistance form;
  - C. Improper cavo-surface angle;

- D. Lack of cavity detail;
  - E. Failure to remove unsupported enamel;
  - F. Faulty pulpal protection;
- IV. Errors or Omissions in the Restoration Warranting a Grade of Failure
- A. Lack of proper contact;
  - B. Open margins (including cement lines);
  - C. Inadequate condensation of dental restorative materials;
  - D. Unnecessary trauma of supporting tissues in finishing;
  - E. Failure to recognize marginal excess or marginal deficiency;
  - F. Placing restoration without adequate isolation;
- V. Errors or Omissions in the Restoration Warranting a Reduction of Grade
- A. Improperly positioned contact areas;
  - B. Improper contours (including marginal ridges);
  - C. Inadequate finishing and polishing;
  - D. Inadequate margins;
  - E. Inserting restoration without wedging matrix band;
- VI. Other Factors Affecting Grade
- A. Neatness and cleanliness of person and performance;
  - B. Professional attitude and demeanor;
  - C. Management of patient;
  - D. Proper application of rubber dam where indicated;
  - E. Proper selection and administration of anesthesia.

#### GUIDELINES FOR GRADING IN PROSTHODONTICS

- I. Absolute Reasons for Failure Not Necessarily Connected with the Complete Denture Exercise
- A. Failure to complete examination in allotted time;
  - B. Performing work procedures in an area other than that assigned for the examination;
  - C. Receiving assistance from other than a chairside assistant (dentists or dental students may not act as chairside assistants);
  - D. Use of altered teeth (ground-in);
  - E. Misappropriation of equipment from testing center (theft);

II. Errors or Omissions in Denture Exercise Warranting a Grade of Failure

- A. Large voids in the impression (5 mm or more in size);
- B. Two or more overcompressed areas in the impression;
- C. Lack of a postdam seal;
- D. Gross overclosing or overopening of vertical dimension (more than 5 mm);
- E. Midline off by one half or more the width of a maxillary central incisor;

III. Errors or Omissions in Denture Exercise Warranting a Reduction of Grade

- A. Failure to observe clinical and/or radiographic signs of oral pathosis;
- B. Gross over- or under-extension of impression tray;
- C. Impression:
  - 1. improper mixing of impression material,
  - 2. lack of definition of tissue detail,
  - 3. inadequate impression of postdam region,
  - 4. inadequate registration of frenular notch,
  - 5. uneven distribution of impression material (too thick or too thin periphery, or improperly seated tray);
  - 6. small voids in impression;
- D. Vertical dimension off by 3-5 mm;
- E. Midline off by less than one half width of the maxillary central incisor;
- F. Faulty articulation of teeth (centric);
- G. Minimal balancing of occlusion;
- H. Esthetics errors:
  - 1. tooth selection and set-up,
  - 2. lipline,
  - 3. wax-up,
  - 4. overjet and/or overbite,

IV. Other Factors Affecting Grade

- A. Neatness and cleanliness of person and performance;
- B. Professional attitude and demeanor;
- C. Management of patient;

Examination Committee  
November, 1971



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### Aging

We must remember that aging is an individual matter with varying degrees of activity. The wise practitioner will make life easier for his patient and himself by anticipating problems which may be encountered by applying a more human and compassionate approach to meeting his patients demands. In his wisdom he will use a philosophical approach when dealing with his elderly patients. Since he will often need to change their attitudes or modify the acceptance of his advice he needs to be aware of their difficulties in adaptation. He must not expect the same response to his suggestions and advice as he would from younger people. The presentation of his case will need to be done in a manner which gains the patient's confidence and allows him to do what is best for the patient.

Robert Harris

Every man seeks truth; but God alone knows who has found it.

Chesterfield

# Collaborative Clinical Trials

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## INTRODUCTION

In recent years there has been a proliferation of collaborative clinical trials in medical research. Many of the individual institutes of the National Institutes of Health have sponsored extensive cooperative efforts to compare therapies for diseases in their own jurisdiction. Included among these, to mention a few, are the Coronary Drug Project<sup>1,2</sup> and the Urokinase Pulmonary Embolism Trial<sup>3</sup> of the National Heart and Lung Institute; the National Breast Cancer Project<sup>4</sup> of the National Cancer Institute; the Controlled Trial of Cyclophosphamide in Rheumatoid Arthritis<sup>5</sup> sponsored by the National Institute of Arthritis and Metabolic Diseases; and the National Cooperative ACTH Study<sup>6,7</sup> of the National Institute of Neurological Diseases and Stroke. An inquiry to the Director of Extramural Research at the National Institute of Dental Research has revealed that no such projects of this type in dentistry are or have been supported.

Based upon experience derived from these collaborative studies, a large body of knowledge has accumulated relating to their design, planning, organization, and implementation. The purpose of this paper is: (1) to explain the essential features of a collaborative clinical trial; (2) to describe how such a study is organized and implemented; and (3) to explore the potential for such an approach in dental research.

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### WHAT IS A CLINICAL TRIAL?

It may be helpful to the uninitiated reader to begin the discussion with a precise definition of a clinical trial. Briefly, a clinical trial is an experiment involving the simultaneous comparison of two or more treatments (one possibly being a placebo) for a specific disease where the experimental units are human beings. Some general principles embodied in this type of experiment include: the precise specification of hypotheses to be tested; careful selection of subjects; simultaneous use of an appropriate control or comparison group; random assignment of subjects to treatment groups; and systematic and unbiased observation of all subjects before, during and at the end of the trial period. These principles will be explained in more detail later in the paper.

The clinical trial may be carried out by a single investigator or by a small team of investigators working as a single unit. In certain situations, however, a special type of clinical trial—the collaborative clinical trial involving several cooperating teams—may be more advantageous. In either case the general principles characteristic of the experiment are the same. The collaborative clinical trial has special advantages and disadvantages associated with it which also will be covered later.

### WHY THE NEED FOR CONTROLLED CLINICAL TRIALS?

All too often the choice of which treatment will be applied is based upon the personal prejudices of the practitioner, which are referred to as “fundamental principles” or “clinical experience.” These preferences frequently result from sporadic, haphazard, and inadequately analyzed experiences.

When the condition of a patient is altered after the application of some treatment, before concluding that the change is due to the specific treatment employed, the following questions must be answered:

- Can the same result be repeated a significant number of times in similar patients?
- Is the change due simply to the natural history of the disease, or in other words, to a lapse of time?
- Is the result due to some other factor which is necessarily related to the treatment in question?

The answers to these questions can only be obtained through a controlled clinical trial. The purpose of the clinical trial is to put the choice between alternative therapies on a more systematic and objective basis.

The use of controlled clinical trials has received particular emphasis with the recent ruling by the Food and Drug Administration that marketers of new medications show them to be not only non-toxic but also efficacious. The law requires "...substantial evidence that the drug will have the effect it purports or is represented to have." Substantial evidence is defined as "...consisting of adequate and well-controlled investigations, including clinical investigations, by experts qualified by scientific training and experience to evaluate the effectiveness of the drug involved."<sup>8</sup>

#### BASIC PRINCIPLES OF THE CLINICAL TRIAL

*Precise specification of hypotheses to be tested.* The first step in a clinical trial is to decide precisely what is to be proven. It is essential that the aims are laid down initially in every detail. This requires a written protocol describing such items as: objectives of the trial; principles underlying the plan; specific forms of the disease to be studied; criteria for selecting subjects; exact treatment regimens to be compared; and instructions about what information is to be collected and how.

As a general rule, the investigation should be limited to answering only a few questions. However, in so doing there is also a limit to the extent to which inferences can later be made.

*Careful selection of subjects.* The subjects selected for the trial should be confirmed as having the particular type of the disease being studied. Misdiagnoses must be avoided and other illnesses simulating the disease in question excluded. In addition, only those patients who realistically could receive any one of the treatments under study should be selected.

*Use of an appropriate control or comparison group.* The essence of the controlled clinical trial is the comparison of two or more treatments. One of the treatments might be a new treatment which shows promise but needs to be evaluated scientifically. The other treatment might be one of established value. However, if no such standard treatment exists, the new treatment should be compared to a pharmacologically inert preparation or placebo (control). Where the condition requires therapy, it may be necessary to compare alternate approaches.

*Randomization.* Randomization refers to the random assignment of subjects to treatment groups. The purpose of this operation is to create groups which are initially equivalent in all respects except for treatment to be received. The allocation of the subject to a specific treatment group should be unknown to the investigator, at least until after he has made the decision to admit the subject to the trial and preferably until the entire trial (including observations) is completed. The conscious or unconscious selection of an individual to a treatment group must be avoided. If the patient cannot ethically be placed into any particular treatment group, he should not be admitted to the study.

Randomization alone is very effective in equalizing treatment groups so long as the size of the experiment is relatively large. However, in the small clinical trial an additional mechanism may be required to produce balanced groups. A safer technique is to use randomization in conjunction with stratification on important factors; for example, if it is thought important to have equal proportions of males in the treatment groups, the randomization may be carried out separately within males and females to guarantee this.

*Systematic and unbiased observation of all treatment groups.* Systematic and unbiased observations must be made on every subject before, during and at the end of the trial. The most effective way of obtaining systematic and reliable data is by using standardized recording forms and a uniform set of instructions for completing them.

Once treatment groups have been established and made equivalent in all respects other than the treatment received by randomization and stratification, it is important that they be treated alike throughout the course of the clinical trial. This is best accomplished by the techniques commonly referred to as "single-blindness" and "double blindness." A single-blinded trial is one in which the subject is unaware of which treatment he is receiving. When both subject and investigator do not know the treatment given, the trial is double-blind. Blindness reduces both subject and investigator bias in the assessment of treatment results, and thus allows clinical impressions to be included and given full weight along with the more objective measurements in the analysis.

Further discussion of the principles of the clinical trial may be found in books by Bradford Hill<sup>9</sup> and L. J. Witt.<sup>10</sup>



## THE ETHICAL QUESTION

As we have seen, one of the important features of a clinical trial is the random assignment of subjects to the treatment groups. On the other hand, this principle of randomization represents the most common objection to doing a clinical trial. The question at issue is one of ethics: Is it unethical not to provide the patient with the treatment best suited for him?

The answer to this question depends, in part, upon what is at stake. If, for example, we are dealing with a non-fatal and non-incapacitating illness whose symptoms are tolerable and temporary, then it might not be a serious matter for the patient to receive a possibly inferior treatment or even a placebo. At the other extreme, it might be impossible to withhold a promising or established treatment from a patient inflicted with a possibly fatal or incapacitating disease.

Often the problem is eased by the state of our ignorance. What is the best treatment for the patient? Clearly, if this were known there would be no purpose for conducting the experiment. In many cases the superior treatment can be identified only after a valid scientific comparison of available treatments is performed. A carefully designed clinical trial is not only more scientific but may actually be more ethical than the treatment of consecutive patients with a new therapy of unproven value.\*

## THE COLLABORATIVE APPROACH

Frequently the samples available at individual locations are either too limited or not entirely representative. Certain conditions occur too infrequently for adequate patient numbers to be assembled in a reasonable period of time without pooling between institutions. Also, the nature of treatment centers may influence the sampling. Patients who are hospitalized may represent only the severely affected victims of a disease. Others may not require such intensive care and are therefore omitted. Socio-economic or genetic variables may be stratified. An example of a dental nature are the norms assembled for cephalometric measurements on preschool children.<sup>11</sup> The availability of a population of Mexican descent has resulted in data which may not apply to other populations. Data on the incidence of space closure following premature loss of primary

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\*A further point concerning the ethical problem which should be mentioned is the fact that in most clinical trials there is a provision for "breaking the code" or dropping the patient out of the study if the treatment he is receiving is life-threatening or producing irreparable damage.

molars was derived from the children in an institution containing predominately diabetic and congenitally syphilitic patients.<sup>12</sup> Reviews of the dental literature reveal numerous instances where the results and conclusions are severely compromised for these reasons. Such problems can be avoided through the collaborative approach, producing broad samplings at many locations.

The collaborative clinical trial is not without its difficulties, however. The very nature of having several cooperating teams, perhaps separated physically by thousands of miles, produces an administratively complex situation. A successful operation requires especially careful instructions on diagnostic criteria and patient selection, data collection and implementation of the study. The choice of investigators is important. Each participant must be willing to sacrifice some of his independence for the collective good of the study. Also, permanence of personnel is needed. In every collaborative trial there should be a coordinator to prevent trouble, to catch it quickly when it starts, and to be always ready to give immediate help when it is needed. A thorough discussion of the collaborative clinical trial, with a special emphasis upon the difficulties involved, has been presented by Mainland.<sup>13</sup>

#### IMPLEMENTATION OF A COLLABORATIVE CLINICAL TRIAL

The National Breast Cancer Project<sup>4</sup> is a suitable example of the mechanism for carrying out a cooperative clinical trial. Principal investigators from many medical schools were enrolled. In this project both surgeons and radiotherapists are involved from each institution as investigators. An Executive Committee, consisting of a rotation from among the investigators, together with representation from the project's Statistical Center and the Cooperative Studies Branch of the National Cancer Institute maintain primary responsibility for this study.

An ad hoc group of participants form a Protocol Committee and serve to monitor the humanistic and medical aspects of the study. The protocol must also receive approval from the Committee on Human Experimentation of each participating institution.

Publication of the results are authored by a Writing Committee and carry within the article the names of the responsible investigators alphabetically, the Project Statistician(s) and such others as selected by the Executive Committee. Individual investigators may report on their own material, but must obtain permission from the Executive Committee before reporting the results from other units or the entire group.

Participating institutions receive partial salaries for investigators and secretarial personnel. Supporting funds for supplies are provided as well as indirect costs.

All patient registrations and random allocations are accomplished by direct telephone communication with the Statistical Center. The calling party is given the patient's study number and on a carefully randomized basis one of five different treatments is assigned. The Center also provides and evaluates all initial and follow-up reports. Standardized report forms are completed for each patient by the investigators. Carefully drawn up instructions explain the entries. All reports are mailed to the Statistical Center for computerized data processing. The course of the disease is followed by amassing these data, and the comparative success of the alternate treatments evaluated by competent biostatisticians.

#### THE POSSIBILITIES WHICH COLLABORATIVE CLINICAL TRIALS HOLD FOR DENTISTRY

Many dental research areas come to mind which might best be studied using the collaborative clinical trial approach. Included among these, to mention a few in the field of pedodontics, are: different application procedures for acidulated phosphate fluoride solutions and gels; pit and fissure sealant materials; treatment of non-vital primary teeth; facial orthopedic techniques; apexification procedures; and replantations of avulsed teeth.

Acidulated phosphate fluoride solutions and gels are applied for 4 minutes because that is the time used in most research evaluations of this agent. Shorter time periods should be studied. However, a comparison of treatment times with a single agent requires large sample sizes, many hours of clinical contact and statistical evaluation of small differences. It appears generally that the problems involved in testing various treatment times have discouraged their investigation. Many more questions come to mind about dosages, timing, alternate indications, comparative treatment efficacies and the like. The magnitude of the effort required for definitive answers probably has defeated most initiatives to approach these problems.

Many of the technics taught to dental students are empirical or based on a small number of studies carried out under specific conditions. Variations in the details of these treatments may have considerable influence on their outcome. The retention of pit and fissure sealant materials is a case in point. The studies show retention of greater than two years in most instances. Our experience at the University of Iowa indicates this is only true when the material is meticulously applied. Their average duration in the many dental



practices where used may be vastly different. The variation in dealing with non-vital primary teeth is another area which is more fraught with opinion than evidence. A well-designed comparative study may be the only way to resolve such controversies.

Many of the less frequently performed treatments can be more adequately evaluated by pooled results. Facial orthopedic technics, apexification procedures, and replantations of avulsed teeth would fall into this category.

The Academy of Pedodontics has initiated recently a collaborative clinical trial to compare two treatments designed to permit the retention of devitalized primary teeth.<sup>14</sup> All members of the Academy will be invited to participate. Under a strict protocol, volunteer participants will administer randomly one of the two treatments to incoming patients with non-vital primary teeth, follow these patients for at least 12 months and send collected data to the study's statistical center at the University of Iowa for analysis. Results will be disseminated to the Academy by means of its newsletter and national meetings.

The project is designed not only to answer a pertinent clinical question, but also to assess the Academy's ability to organize and implement such cooperative clinical trials. If this first project is successful, these trials could become a major concern of the Academy, possibly attracting outside funding. Properly executed they could upgrade the practice of pedodontics and give the Academy of Pedodontics an important additional professional role. Many other dental organizations might make significant contributions through joint participation of their membership.

#### SUMMARY

The controlled clinical trial is a type of investigation involving the comparison of alternative treatments for a specific disease where the experimental unit is the human being. Some of the basic principles embodied in this type of investigation include: a precise specification of hypotheses to be tested; careful selection of subjects; use of appropriate controls; random assignment of subjects to treatment groups; and systematic and unbiased follow-up of all subjects.

There has been a significant increase in the use of clinical trials by medical researchers in recent years. This has been true especially where a collaborative effort has been made involving the participation of several different centers. The result of these efforts has been to identify on a scientific basis superior treatments for a number of disease conditions.

Surprisingly little use of the collaborative clinical trial has been made in dental research. The purpose of this paper has been to acquaint the reader with the concepts and implementation of this type of investigation and to explore its potential application to problems in dental research.

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# An Increased Measure of Social Consciousness\*

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The twentieth century has seen dentistry develop and take its place as one of the world's leading professions. As we move into the second half of the century, we can see that the progress will be even greater as our diagnostic aids, techniques and materials improve.

In an article in the *Journal of the Michigan Dental Association* (February 1956), Dr. Kenneth A. Easlick stated that he felt that dentists will develop an increased measure of social consciousness which will project their interests far beyond the restrictive walls of the dental operating room and the exacting techniques performed in the oral cavity; that dentists will feel a greater responsibility for the welfare of the individual and the community. It is my belief that this is as it should be. For besides being dentists, we are citizens of the cities in which we live.

Do we as busy dentists have the time for public service or for work on civic projects? Each of us, of course, must answer for ourselves what we think are our responsibilities to the many problems of human society. It might be said that just striving to practice the best dentistry that we are capable of, contributes to the community's welfare—and certainly this is so. To me the serving of society is like paying rent for the privilege of living and making our homes among the people whom we love. If we are to reap the harvest and take the fruits of a good life in our respective communities, then we must also build the soil that makes these rewards possible.

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We expand our circles of community cooperation through civic understanding. Certainly if we are to know a Golden Age in civic development, then we must have a mature civic tradition in our national life that will both inspire and educate a civic leadership. If our societies are deficient, it is then a consequence of our ignorance in the arts and sciences of civic life. Often we are too busy with the problems of our own personal lives.

Briefly about myself: I am a dentist in general practice in Delano, California, U.S.A.—a city of 15,000 population. I have been Mayor of the City since April 1956, and prior to that time, served for four years on the City's Planning Commission. I was President of the American Association of Dental Examiners in 1969. I was also President of the League of California Cities in 1971. Through my experiences, I hope that I may have something of worth to offer you.

One of the glories of our work as dentists is that we can experience that thrilling reward at the end of our day's work when the last patient has left the operating room and in the quiet moments that follow, of reflecting and realizing that knowing the good, we have done it; knowing the beautiful, we have served it; and knowing the truth, we have spoken it. These satisfactions can be ours in public service, too.

As dentists we are particularly suited to serve our communities, for the code of ethics by which we practice lays heavy stress on honor, character, and integrity. One could hardly practice dentistry without also being somewhat of a humanitarian, a prerequisite to successful public service. By the nature of our work, we learn early in our careers the importance of self-reliance and a respect for healthy individualism. The creative power of the individualistic thinker is essential to society if we are to avoid the pitfalls of conformity in our thinking and the resultant collective sterility.

The preservation of our respective forms of government, of law and order, and of respect for the dignity of man, is traditionally the obligation of each citizen. In this Atomic Age, however, the motivation is somewhat stronger than the abstraction of civic duty because of the clear involvement of the factor of self-preservation.

Too many men watch the passing scene of life, not as participants with an obligation, but as observers without responsibility. It is certainly easy to evade responsibility, but what we cannot evade, are the consequences of evading our responsibilities. To me the miracle of a happy, successful life is clear to all who wish to know it. The greatest of all satisfactions, the greatest compensation of our mortal years, comes only when we as individuals face, at whatever sacrifice, the responsibilities that we know are ours and ours alone.

I do not know how to state strongly enough the convictions that I feel—thrilling me and terrifying me at the same time—that the fate of democratic representative government is decided by the extent and intensiveness of enlightened participation therein by its citizens. I know of no way that I can begin to contribute to the success of a church, a school, or even a dental association, until I begin participating in their affairs. And I know of no way I can do my part in my city until I work in my city's affairs.

Free representative government has run a terrific gauntlet of war and disaster during this century. If we have learned any lesson from it, that lesson is that there must be fully informed and active concern for the day-to-day course of free representative government on the part of most citizens.

The accident of life, and the luck of life, has afforded me experiences which in turn have motivated me to think and to draw upon this reservoir of knowledge which comes from my education and life experience. For we really are, in truth, a part of all that we have known and heard—but we keep growing life-long, don't we? And so, what I might tell you today, might have to be said differently next year or in the year after that—but that is speculation and we must deal today with the realistic issues of NOW.

An area of concern is that of relating dental change to national change. As we look at the near-term future, we can see many things on the horizon that we must prepare now to face and to solve:

1. Manpower to provide dental care of greater quality to a greater percentage of the population.
2. The belief that dentists can no longer limit their thinking to the four walls of a dental office, but must take greater part in community activities generally.

#### THE MANPOWER PROBLEM

In regard to the manpower problem in dentistry, I think we all are aware of the staggering dimensions of the dental care crisis that is developing across our nations because of expanding social welfare benefits and labor union fringe benefit programs. Then, there is the normal population increase, plus greater available disposable income in the hands of more citizens, which is creating a demand by a greater number of patients wanting an even greater quality of dentistry on a more regular basis. The patients of the future will demand endodontic therapy as an alternative to tooth loss. Almost all will soon demand periodontal therapy as a routine component of

dental care. The greatest impact could be for orthodontic care for all children for society will find it unacceptable to allow children to grow up without the correction of disfiguring malocclusion. Where this may be now a service granted to the economically affluent or socially privileged, in a few years most children will qualify for orthodontics and the supporting pedodontics. Our present means of educating dentists and dental hygienists will obviously not meet this need. More dental colleges will be needed. Schools of dental hygiene will have to be greatly expanded and the delegation of supervised duties to dental auxiliaries will have to be carefully programmed and delineated or we will not be able to keep up with the increased need for dental service.

#### THE DENTIST IN COMMUNITY ACTIVITIES

Let me say that there was probably a time when dentists could limit their area of concern to the four walls of the dental office, but unfortunately this is no longer true. Today, we have a greater burden of responsibility and that is to see that the dental needs of our nations are met with competence. In this, we must learn to expect the unexpected and to sometimes learn to accept what to us would be the unacceptable. We must approach our problems with empathy, tolerance, compassion and sense of our own fallibility.

It has been said that the beginning of wisdom for all of us is to know that the future is unknowable. This sounds simple but in fact it is a rare achievement. Recognizing the inscrutability of the future requires an extraordinary degree of humility and intellectual self-discipline. We can do this; for we as educated and responsible people would have these qualities. It requires that we candidly recognize that human history is a discontinuous process, rather than a neat projection of established trends.

John W. Gardner, the former American Cabinet Minister of Health, Education & Welfare, said this beautifully during the dedication of the American Dental Association Building: "But remember that professions are subject to the same deadening forces that afflict all other human institutions, an attachment to time-honored ways, reverence for established procedures, a preoccupation with one's own vested interests, and an excessively narrow definition of what is relevant and important. In short, the future beckons, but you have to be equal to the future."

Charles W. Kettering, a former President of General Motors Corporation, said it another way: "We must use the past as a guidepost, not as a hitching post. We have but reached the shore of a vast, unexplored continent. We cannot turn back."

*(Continued on Page 192)*



# The Relationship Between Social Class Academic Achievement and National Board Scores of Students in a Dental School

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The social class background of a professional student is a dimension, subtle but important, of his intellectual quality.<sup>1</sup> In recent years there have been several studies on the relations between social class and academic achievement at the high school and college levels. These relations have been documented by studies done by Hollingshead,<sup>2</sup> Warner and Abegglen,<sup>3</sup> Rosen,<sup>4</sup> Terman and Oden,<sup>5</sup> Bell,<sup>6</sup> Ericson,<sup>7</sup> Sibley,<sup>8</sup> and Havinghurst and Neugarten.<sup>9</sup> Research at the professional level of the medical school includes studies done by Fredericks and Mundy,<sup>10</sup> and Woods, Jacobson and Netsky<sup>11</sup> who examined social class in terms of medical school performance. Rosinski<sup>12</sup> examined social class in relation to the untapped pool of possible medical school applicants.

Research in the socio-psychological dimension of the dental student includes the work by Quarantelli<sup>13</sup> and that of Moor and

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Kohn<sup>14</sup> who investigated motivation in dental students. Pavalko<sup>15</sup> concerned himself with the social background and occupational perspectives of predental students, while Fredericks and Mundy described some selective attitudes of Freshmen dental students in terms of their social class position.<sup>16</sup> Schour<sup>17</sup> focused upon the changing concepts in dental education while Heller, Carson and Douglas studied the selection of students for dental school.<sup>18</sup>

With the exception of research conducted by the authors,<sup>19</sup> apparently there has been no previous attempt to explore the relationships of social class (SC), academic grade in college (AGC), average science grade in college (AGS) of the AGC, dental aptitude test (DAT) scores, academic achievement (AA) and the National Board Examination (NB) scores. It is hoped that the present study might offer some indication of how persons from different socio-economic classes respond to professional dental education.

In this study, therefore, an attempt is made to examine the following two empirical questions:

1. Do dental students from families of upper-class background have higher academic records in the four years of dental school than students of lower-class origin?
2. Do dental students from families of upper-class background have higher NB scores than students of lower-class origin?

It is hypothesized that dental students from families of upper class background have higher academic records and NB scores than dental students from families of middle and lower class backgrounds. Stated in the null form the above hypothesis reads: Social class does not relate significantly to an individual's academic records and National Board Examination scores. A "p" of .05 was accepted as statistically significant.

#### METHOD

The study sample, which has been described in previous papers, consisted of 1 class of 81 male dental students who attended a midwestern school of dentistry during the academic years 1965-1969.<sup>20,21</sup> Originally, there were 86 students, but 5 discontinued studies at the end of the freshman year. Most of the students in the sample came from rather small, fairly well-educated families living in urban communities at a reasonably high socioeconomic level. Twenty-three per cent of the respondents had German ancestry and 18 per cent were of Italian descent; in both instances the progenitors were mainly from the lower-middle and upper-lower classes.

The former papers also describe the manner in which the study subjects were grouped into social classes. This entailed an initial 5-class grouping using Hollingshead's 2-factor index of class position, based on their father's education and occupation.<sup>22</sup> Since the number of cases in Class II and Class V was too small to allow for statistical analyses, the subjects were regrouped into 3 classes, with 20 students (24 per cent) in Class 1, 32 (39 per cent) in Class 2, and 29 (36 per cent) in Class 3. Subsequent to the regrouping, the classes were identified simply as 1 (formerly I, 2 (formerly II and III), and 3 (formerly IV and V).

The concept of social class used in this study refers to the kinds of psychological and social characteristics found distributed differentially among dental students classified by the weighted index of the father's occupation and education.

In this research, also, each sub-test of the Dental Aptitude Test (DAT) was analyzed, but specific focus was given to the analysis and investigation of the 2 composite or average scores, namely, Academic Average (AC) and the Manual Average (MA).

In accordance with the policy of the school under study, the NB examinations (Part I) were given near the end of the second year of the preclinical period; Part II was administered near the end of the fourth year of dental school.

The hypothesis that academic achievement in the four years of dental school is significantly related to social class is not supported by the data in Table 1.

While the data in Table 1 do not provide evidence of a positive relationship between social class and dental achievement, neither do the data alone confirm the null hypothesis that social class does not significantly relate to an individual's academic achievement in the four years of dental training. The similarity in academic achievement among the 3 social classes does confirm the fact that the subjects have high intellectual ability, this having been established by their acceptance for dental education.

To further test the hypothesis by determining whether or not social class is related to either of the 3 other achievement variables—DAT, AGC, and AGS—and whether these, in turn, are related to academic achievement.



TABLE 1

**Relationship Between Social Class and  
Academic Achievement of Students in a Dental School**

Academic Achievement	Social Class Categories					
	Classes 1 and 2 t      Sig.*		Classes 2 and 3 t      Sig.*		Classes 1 and 3 t      Sig.*	
First Year Academic Achievement – Cumulative Average	0.78	NS	0.26	NS	1.07	NS
Second Year Academic Achievement – Cumulative Average	–0.70	NS	0.36	NS	0.42	NS
Third Year Academic Achievement – Cumulative Average	–0.11	NS	0.25	NS	0.14	NS
Fourth Year Academic Achievement – Cumulative Average	–0.46	NS	0.83	NS	–0.58	NS

\*Sig. = Significance; NS = No Significance

TABLE 2

**Relationship Between Social Class of Dental Students and  
Average Academic Grade in College, Academic Science Grade in College  
and Academic and Manual Averages of Dental Aptitude Test**

Academic Achievement	Social Class Categories					
	Classes 1 and 2 t      Sig.*		Classes 2 and 3 t      Sig.*		Classes 1 and 3 t      Sig.*	
Average Academic Grade in College (AGC)	–0.17	NS	0.48	NS	0.20	NS
Average Science Grade in College (AGS)	1.10	NS	0.38	NS	1.36	NS
Academic Average of Aptitude Test (AC)	–0.07	NS	1.57	NS	1.14	NS
Manual Average of Aptitude Test (MA)	–1.56	NS	0.26	NS	–1.13	NS

\*Sig. = Significance; NS = No Significance

SOCIAL CLASS, AGC, AGS, DAT (AC, MA)  
AND ACADEMIC ACHIEVEMENT

Considerable effort has been expended in analyzing the validity and reliability of the Dental Aptitude Test (DAT) as predictor of performance in dental school. Research in the above area include the work of Gruber and Gruber,<sup>23</sup> Manhold, Vinton and Manhold,<sup>24</sup> Reilly, Yufit, and Mattson,<sup>25</sup> and Peterson.<sup>26</sup>

The data presented in Table 2 indicate that a dental student's social class is not related to his undergraduate performance, his average grade in science, or the academic and manual averages of the dental aptitude test.

NATIONAL BOARD EXAMINATION SCORES AND SOCIAL CLASS

Very little effort has been concentrated on the evaluation of the National Board (NB) examination scores in relation to variables such as social class. In this study, the hypothesis that the National Board Examination Scores is related to social class is not supported by the data presented in Tables 3 and 4. It would seem, therefore, that many students in social class 1 and 2 scored low on the National Board Examinations, and conversely, many students in social class 3 exhibited relatively high NB scores.

DISCUSSION

This study shows that students in 3 social classes performed at comparable levels in their four years at a dental school. In addition, the National Board Examination were unrelated to the students' social class backgrounds. While dental school applicants obviously require intensive assessment to discover whether or not they have the ability to meet the technical and intellectual demands of dental training, the data from this study indicate that neither the DAT, previous college performance (AGC), nor the average grade in science (AGS) is indicative of degree of success in the four years of a dental school curriculum. Since many dental schools are involved in a study for evaluating applicants and of their educational programs, it seems incumbent upon their faculties to study evermore critically the validity of the DAT scores, the AGC, and the AGS as predictors of performance in dental schools.

Further, the results of this study suggest that lower-social class background of a dental student should not be even subtly a disqualifying factor for a candidate to dental school—especially since social class has no relationship whatever either to academic achieve-





ment or scores of the National Board Examinations.

Since the representatives of the three social classes covered in this study came from white urban settings, further research is required to determine whether the results will be similar for all regions and sub-cultures.

#### SUMMARY

Social class was studied in relation to average grade in college, average grade in science, dental aptitude test scores, academic achievement and scores on the National Board Examinations. The data indicate these findings:

1. Academic achievement in the four years of dental school was not related to social class.
2. Average grade in college of dental respondents was not related to social class position, nor were the average college grade in science related significantly to social class.
3. There was no relationship to social class background of respondents and the scores obtained on the National Board Examinations.

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# Audiovisual Materials in Dental Education\*

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There are probably few fields in higher education in which audiovisual materials can be used to more advantage than in dental education. To a large extent, this results from the need of students to view procedures in order to gain a high degree of proficiency in psychomotor skills. Additionally, it has been demonstrated in dentistry, as well as in other fields, that audiovisual materials, when properly used, can make an invaluable contribution to learning — especially psychomotor learning.

Granting the value of audiovisual materials to learning, and granting the need of these materials in dental and dental auxiliary education, there is still a need to find out what materials are presently available, which ones are actually used, and what teachers would like to use. This information would serve as the basis for establishing a clearinghouse of information, fostering the exchange and use of available and worthwhile instructional materials, and establishing priorities for the development of needed materials.

To date, there is no single, complete, and up-to-date source of information for reference by a dental teacher or student who wants to know the availability of instructional materials. None of the catalogs of audiovisual materials in dentistry and in other health-related fields, such as those published by the National Medical Audiovisual Center in Atlanta, the National Audiovisual Center in Washington, D.C., or the American Dental Association are complete and comprehensive. The lack of information on the current media

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utilization practices by faculty members hampers the efforts to meet the need for additional audiovisual materials. The orderly and efficient production and distribution of new materials needed by dental and dental auxiliary schools should be based on knowledge of which materials are available and which materials are being used. Awareness of what is available should prevent unnecessary duplication in the production of audiovisuals and would foster the interchange of existing materials among the various dental schools.

#### AVAILABILITY OF AUDIOVISUAL MATERIALS IN DENTISTRY AND HEALTH SCIENCES

One of the few sources of information regarding availability of audiovisual materials in medical and health related fields has been the computerbased International Index of Medical Film Data, compiled by the National Medical Audiovisual Center (NMAC) in Atlanta, Georgia. However, subject searches from the Index have been temporarily discontinued so that preparations for a new file of current evaluated audiovisuals can be completed. The new data base will contain materials on dentistry and dental technology.

A recently established agency within the National Archives and Records Service of the General Services Administration is the National Audiovisual Center (NAC),<sup>1</sup> which has now become the central sales point for all government-sponsored films, filmstrips, slide sets, and other audiovisual materials. Their 1970 catalog contains a listing of about 3,000 films and filmstrips, over 100 of which are on dentistry. A special catalog of medical and dental 8mm films, also published by NAC, lists over 100 single-concept 8mm films in dentistry.

Another source of dental films is the Bureau of Audiovisual Service of the American Dental Association<sup>2</sup>. In addition to an annual catalog of audiovisual materials available from their library, the ADA also compiles special listings of audiovisual materials in specific subjects, such as pathology, patient education, and preventative dentistry.

A few dental schools have their own lending libraries and have published catalogs of audiovisual materials which they distribute. Among these institutions are the University of Iowa, Loma Linda University, and the University of Minnesota.

It must be remembered, however, that the listings of films and other audiovisual materials in these catalogs overlap. Thus, the films listed in the ADA catalog may also appear in NMAC's Film Guide

and in NAC's sales catalogs. Also, it must be noted that the criteria for including films in these catalogs are not based on actual usage by the profession, but simply on what the producers reported they had produced.

A recent compilation that may have some relevance to media in dentistry is on the availability and use of 8mm films in the medical sciences.<sup>3</sup> In the survey of 8mm films by Benschoter, questionnaires were sent to deans of medical schools, directors of audiovisual services, directors of junior colleges and university nursing programs, libraries and film companies. None were sent to the actual users themselves — i.e., the teaching faculty.

The nursing profession has also recently conducted a national survey of audiovisual materials in their field.<sup>4</sup> However, like the survey of 8mm films in the medical sciences, the questionnaires were directed to institutions, hospitals, extended care facilities and nursing agencies, and to professional producers, and not to the individual teachers. This is, of course, in keeping with their purpose, i.e., to provide a central source of information concerning films, videotapes, filmstrips, slide series, and tape recordings for the education of student and practicing nurses. The nursing survey has also provided a listing of 274 titles and descriptions (out of 620 compiled) that underwent review and met the standards of a 75-member committee of nursing experts.

In the fields of dentistry, recent surveys on the use of audiovisual materials\*\*\* have concerned the teaching of pedodontics,<sup>5</sup> periodontics,<sup>6</sup> and dental assisting.<sup>7</sup> These surveys were conducted by their respective national societies: the American Society of Dentistry for Children, the American Academy of Periodontology, and the American Dental Assistants Association. The role of the Division of Dental Health with regard to these surveys was to lend support and give technical assistance.

These three surveys attempted to determine which audiovisual materials the faculty used and would like to use, the reasons for use or non-use of existing materials, the relation of a teacher's educational background and experience to the use of these materials, and the need to establish a clearinghouse and a library of instructional materials in each particular teaching area. Data from the three surveys is shown in Table 1.

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\*\*\*Copies of the final report for each of these surveys can be obtained by writing to the Education Development Branch, Division of Dental Health, Dental Health Center, 14th Avenue and Lake Street, San Francisco 94118.

TABLE 1

Variable	Pedodontics	Periodontics	Dental Assisting
Response rate	55% (total population of 451)	81% (total population of 600)	85% (total population of 120)
Audiovisual user	72% (out of 246 respondents)	79% (out of 483 respondents)	94% (out of 102 respondents)
No. of materials used	250 titles/topics	375 titles/topics	400 titles/topics
Academic rank	Professors used more AV materials	Professors used more AV materials	Directors used more AV materials
Academic appointment	Full-time teachers used more AV	Full-time teachers used more AV	Full-time teachers used more AV
Teaching experience	Those who have taught more years used more AV	Those who have taught less years used more AV	Those who have taught more years used more AV
Academic degrees	Those with MA in addition to DDS used more AV	Those with MA in addition to DDS used more AV	Those with BA degrees used more AV than those with AA
Inservice education	Those who had inservice educ. used more AV	Those who had inservice educ. used more AV	Those who had inservice educ. used more AV
Frequency of media use	5 times or less per year	5 times or less per year	6 - 25 times per year
Source of information	Colleagues (most frequently cited)	Colleagues (most frequently cited)	Colleagues (most frequently cited)
Reasons for use	Clarify difficult concepts (most frequently cited)	Clarify difficult concepts (most frequently cited)	Supplement basic content with new information (most frequently cited)
Reasons for non-use	Materials hard to locate (most frequently cited)	Materials hard to locate (most frequently cited)	Materials hard to locate (most frequently cited)



A breakdown of the number of audiovisual materials used, by type of media is shown in Table 2.

TABLE 2

Type of Media	Pedodontics		Periodontics		Dental Assist.	
	Instr. Used	Comments Like to Use	Instr. Used	Comments Like to Use	Instr. Used	Comments Like to Use
16mm films	75	73	135	130	276	62
8mm films	13	58	86	79	76	19
slides/filmstrips	125	75	199	113	132	43
overhead transparencies	29	17	46	31	82	21
television	57	63	84	96	35	9
programmed instruction	10	88	43	99	27	25

Although impressive-sounding, these numbers may not mean much, because it is doubtful whether these materials are available and whether they are satisfactory. Most of these materials may have been produced solely for the use of the individual producer.

Reports of the surveys indicated merely show the state-of-the-art, but are important enough to draw some conclusions and make some recommendations regarding future interchange of instructional materials.

Another important project mentioned by Dr. Bruce Bell at this meeting was Project ACORDE, which stands for *A Consortium on Restorative Dentistry Education*. In addition to the development and production of new instructional materials for the teaching of expanded functions, Project ACORDE has also formed a Subcommittee for the Review of Existing Materials. A quick search of audiovisual materials in operative dentistry that might be applicable in teaching expanded functions yielded approximately 500 titles. Results show that a large number of audiovisual materials are being used and that there is a great duplication of effort in the production of instructional materials. With the exception of those produced by the University of Alabama, materials are not being shared; those produced by individual dental schools are for the most part being used only by that particular school.

Table 3 shows a breakdown of the number of audiovisual materials used by operative dentistry departments, classified under specific procedures that may be taught in the expanded duties curriculum.

TABLE 3

Operative Procedures	Number of Materials Used
1. Instrument sharpening	18
2. Four-handed dentistry	70
3. Rubber dam placement and removal	95
4. Rotating instruments	52
5. Cavity preparation for restorative materials	135
6. Placement of bases	49
7. Placement of liners, sealers and varnishes	41
8. Fabrication of operative restorations	87
9. Placement of restorative materials	113
10. Finishing of dental restorations	87
11. Refinishing of old restorations	3
12. Cusp protection	26
13. Pin-retained amalgam restorations	24
14. Impression techniques for operative dentistry	40
15. Temporary restorations	12
16. Occlusion in operative dentistry	28
17. Periodontal principles in operative dentistry	10
18. Preventive principles in operative dentistry	19

Again, from these figures, the availability and the quality of the materials are questionable. The next step, therefore, will be to follow up on the dental schools that have responded to determine if they are willing to have their materials evaluated for possible inclusion, modification, or adoption in the development of new materials for Project ACORDE. Or, if permission is granted the productions may be listed in their entirety, as sources of reference for Project ACORDE or as citations in a catalog of available instructional materials in dentistry.

A National Survey of Audiovisual Media, sponsored by the American Association of Dental Schools, is now underway. I will not say anything about the AADS survey except that the data for Phase I of the project are now being compiled and analyzed, and any questions regarding the survey will have to be referred to Mr. Harry Wiesenfelder, Assistant Secretary and Director, Educational Resources and Studies, AADS.

#### CONCLUSIONS

On the basis of the surveys conducted in the teaching fields of pedodontics, periodontics, and dental assisting, the following conclusions seem justified:

1. Varying degrees and frequency of media use were identified according to selected professional characteristics of the teachers surveyed. Those who had higher academic rank, more earned degrees, and longer teaching experience used more audiovisual materials in their teaching. The amount of media use was more among those who had longer teaching hours (except the periodontics faculty) and more recently earned degrees.
2. It appears that inservice teacher education was influential in increasing the use of media by the teachers surveyed. Those who had taken courses in teaching methods (with or without direct training in the use of audiovisual materials and equipment) used more audiovisual materials in their teaching than those who had not.
3. The reasons for not using specific types of audiovisual media appear to be the difficulty of locating appropriate materials and obtaining the needed equipment. In the opinion of many, these deterrents could be overcome partly by the establishment of a comprehensive computer-based catalog of carefully indexed and critically evaluated audiovisual materials in dentistry, and a periodic listing of audiovisual materials and equipment available in each dental school.
4. The large number of titles or topics for all types of media reported as used by respondents suggest that a large number and variety of audiovisual materials have been produced. The fact that only a small fraction of these materials are commercially available further indicates that most of these materials are either personally produced or produced by individual departments, dental schools, private organizations or associations, or funded



by Federal grants. A need exists, therefore, to locate and identify these materials, evaluate them, and catalog and make available those materials judged worthwhile by an evaluating team.

5. The high response rate among the pedodontics, periodontics and dental assisting teachers that served as the population for the studies, the interest expressed by almost all the respondents in taking inservice education courses, the difficulty of locating appropriate materials and of obtaining the needed equipment as the most frequently reported deterrents to media use, and the large amount and variety of title or topics of audiovisual materials that respondents used and would like to use, are reason enough to conclude that there is a genuine interest in increased and effective use of media by the dental and dental auxiliary faculty.

#### RECOMMENDATIONS

From the analysis of the data and findings of the three surveys, the following recommendations are made:

1. In view of the difficulty of locating audiovisual materials and obtaining the equipment needed to show them, it is proposed that a periodic listing of materials and equipment which each dental school has or has access to should be made available to the dental professions.
2. The lack of a comprehensive and up-to-date source of information about educational media makes it necessary that a communication line (such as a newsletter or an insert in a national dental journal) be established among dental and dental auxiliary teachers regarding instructional materials they have used or produced.
3. The positive influence of graduate degrees and inservice teacher education courses on the use of media in teaching, and the interest expressed by majority of the respondents in taking such courses point to a strong need for developing instructional development programs especially designed for the dental faculty. It is further recommended that problems of in-service professional training of dental teachers, as they relate to effective use of media, be investigated.
4. Since no attempt was made in these studies to ask the respondents for the technical specification, description, and

evaluation of audiovisual materials they had used, it is recommended that a follow-up study be made to annotate and evaluate materials used by the dental and dental auxiliary faculty for possible inclusion in catalog listings of audiovisual materials in dentistry.

5. It is further recommended that a comprehensive, computer-based list of audiovisual materials in dentistry be developed, indexed and cross-indexed according to media, availability, general subject area, and specific sequences within each subject area. A system should also be designed for the duplication, storage, and dissemination of worthwhile audiovisual materials in dentistry.
6. Similar surveys on the extent to which audiovisual materials are used in teaching should be conducted in other specific dental and dental auxiliary areas. It is also recommended that the annotation, evaluation, duplication, and dissemination of audiovisual materials that have been identified or located be made soon after each survey.
7. Periodic follow-up surveys, perhaps every two or three years, should be made not only to find new audiovisual materials that have been produced and used, but also to assess the effect of these surveys on media utilization practices on the dental faculty.
8. The list of audiovisual materials respondents would like to use could serve as a basis for establishing the priority needs of dental teachers for the production and utilization of new instructional materials. This information would also be valuable to producers, sponsoring agencies, and training organizations involved in developing instructional materials in dental education.
9. The large amount and variety of audiovisual materials used by respondents in these surveys presents a strong justification for the establishment of a central clearinghouse of information, as well as a library of instructional materials, in all areas of dental education. In addition to providing information on sources and availability of audiovisual materials in dentistry, the central clearinghouse could also coordinate and monitor all activities relating to the annotation, evaluation, duplication, and dissemination of these materials.

*(Continued on Page 192)*

# Report of the Committee on Education

Consistent with the long history and interest of the College in the Field of Education, the activities of your committee in 1972 has been most productive.

Culminating two years of planning, a meeting in Atlanta, Georgia, October 4-6, 1972, brought together some forty leaders representing all segments of the profession to carefully review and evaluate, "Newer Techniques in Dental Education." The facilities of the National Medical Audio-Visual Center provided an appropriate setting where objective and critical analysis could be made of methods used in communicating scientific information in dental research, dental education, and clinical practice.

Participants were challenged to help weave into the fabric of our profession a more dynamic concept in the "sharing of information."

Since the effective transmission of information is a science, objectives were suggested and techniques demonstrated in the sequential development of the various learning systems. Like "Koch's Postulates," an orderly procedure is mandatory regardless of the subject matter or media to be used.

Unfortunately, the content of much of our currently accepted educational efforts do not meet the prerequisites of:

1. Objective analysis of information to be delivered.
2. Efficient design and selection of media (whether lecture, tutorial or electronic) to meet the needs of a particular level of understanding in a relevant manner.
3. Full utilization of available techniques to assure acceleration of the learning process, and so packaged that accessibility and convenience of use are facilitated.

You will be pleased to know that several of the papers presented are being prepared for publication.

It is requested that the Board of Regents give consideration for development of a program during the coming year which will permit certain selected Sections to become involved in the distribution of audio-visual materials with emphasis on the continuing education of the practitioner. It is felt that by so doing the lines of communication from dental research through dental educators to the practicing dentist would be complete.



The development of a modular system of this type would have great impact on the profession and reflect favorably on the American College of Dentists and its role as a service institution.

If the Regents concur with this recommendation, the Committee on Education should become active in these areas as soon as possible. These activities could involve one or two meetings of the committee, or selected members of the committee, during the next twelve months.

William R. Patterson  
Chairman

### **Social Consciousness** (*Continued from page 173*)

Gentlemen, it is the challenges that pull us on to greatness. Organizations don't necessarily run on money, skills, and natural resources. They run on motivation or aspiration or on a vision of what they might become. An organization needs challenge and you have to want something better for dentistry and society, and for yourselves.

In closing, I would like to share with you my favorite quotation from the philosopher Goethe who said, "If you treat people as if they were what they ought to be, then you help them become what they are capable of being."

1315 Van Ness Avenue  
Fresno, California

### **Audiovisual Materials** (*Continued from page 190*)

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6. Sturwold, Virginia G., and Boigt, James P., Audiovisual Materials Used in Teaching Periodontics. Final Report, Division of Dental Health and American Academy of Periodontology, 1971, 87 pp., spiral bd.
7. Sturwold, Virginia G., and Torres, Hazel O., Audiovisual Materials Used in Teaching Dental Assisting. Final Report, Division of Dental Health and American Dental Assistants Association, 1972, 76 pp., spiral bd.

### Section News (*Continued from page 136*)

Portland, Oregon were also our guests. Doctor Kramer, A.D.A. Trustee for the eleventh district, was the main speaker of the evening.

Chairman J. Fred Grant conducted a short business meeting and new officers were elected for the coming year. They are: Chairman, Olin Loomis of Seattle; First Vice-Chairman, Earl Maston, Seattle; Second Vice-Chairman, Ted L. Harper, Spokane, and Secretary-Treasurer, Lloyd Wolford, Olympia.

### New Jersey Section

The New Jersey Section met in April at Kenilworth, with Chairman L. Deckle McLean presiding. Executive Director of the College, Robert J. Nelsen was the guest speaker. His topic was "Professionalism" which he described as placing the welfare of the patient above that of the practitioner. He discussed the pressures being brought to bear against the ideals and ethics of professional people which would turn dentistry into a craft or trade.

Dr. Nelsen stated that the future success of the College will be directly related to the quality of the nominations made by the Fellows. There is a need for nominees who are making contributions to the advancement of dentistry. He spoke of the ACD Foundation and of Project Library and urged support of these activities.

New officers for 1973-74 were elected and installed. They are: Chairman, James Hipple of Trenton; Vice Chairman, H. Curtis Hester of Upper Montclair; and Secretary-Treasurer, Marvin L. Fishmann of Trenton.

### NEWS OF FELLOWS

Fellow Joe Hall Morris, of Memphis, Tennessee received the Humanitarian Award from the Memphis Dental Society at its recent installation and awards banquet in recognition of his services to dentistry, fellow dentists, and the public. This is the Memphis Dental Society's highest award. Dr. Hall is also the recipient of the University of Tennessee Dental Alumni Award for his achievements in advanced dental education and service to the Tennessee Dental Association.

Louis A. Saporito, president of the American Dental Association, received honorary degrees of Doctor of Science at the graduation exercises of Fairleigh Dickinson University Dental School, New Jersey College of Dentistry, and Georgetown University Dental School, presenting an address on each occasion. Dr. Saporito has also received the Distinguished Alumnus Award from Columbia University School of Dental and Oral Surgery.

Brigadier General Jack P. Pollock, Deputy Commander for the Health Services Command, has been awarded the Legion of Merit, First Oak Leaf Cluster. General Pollock, Dental Corps, was cited for exceptional meritorious conduct in the performance of outstanding service while assigned to the Office of the Assistant Secretary of Defense (Health and Environment) from July 1970 to February 1973. While serving as Special Assistant for Dental Affairs, he demonstrated exceptional professional competence and was an invaluable asset to the Assistant Secretary concerning all aspects of dental professional matters. The citation further stated that General Pollock demonstrated his singular ability to effect common support for Defense policies which contributed toward maintaining a strong career force of health professionals.



Major General Spurgeon Neel congratulates Brigadier General Jack P. Pollock after awarding him the Legion of Merit (First Oak Leaf Cluster).



Harold P. Thomas, chairman of the department of general dentistry at the University of Tennessee College of Dentistry, has been named a Goodman Professor of Dentistry. The Goodman Professorship is the highest honor the College can bestow on a member of its faculty, recognizing not only the recipient's teaching ability but also his continuing contributions to his profession.

Edwin M. Speed, an assistant dean of the University of Alabama School of Dentistry, was named president-elect of the American Association of Dental Schools at the AADS 50th anniversary meeting recently. Dr. Speed is currently the Chairman of the Alabama Section of the College.

L. Deckle McLean of Jersey City, New Jersey has been installed as 104th president of the New Jersey Dental Association. Dr. McLean is immediate past chairman of the New Jersey Section of the College.



Rear Admiral George D. Selfridge, Dental Corps, U.S. Navy (right) has been promoted to flag rank. Rear Admiral V. L. Anderson, DC USN, Commanding Officer of the Naval Dental Clinic, Norfolk, Virginia is shown presenting Rear Admiral Selfridge with his personal flag at his recent "frocking" ceremony. Rear Admiral Selfridge, the former Executive officer of the Naval Dental Clinic, Norfolk has assumed new duties as the Commanding Officer, Naval Graduate Dental School, Bethesda, Maryland.

Lloyd J. Phillips of Indianapolis, Indiana was elected vice president and member of the Board of Directors at the American Fund for Dental Education's recent annual meeting in Chicago. Dr. Phillips is a member of the Board of Trustees of the American Dental Association and currently serves as chairman of the Finance Committee.

John M. Faust of Hattiesburg, Miss., was elected to the American Fund for Dental Education's Board of Directors. Dr. Faust also serves as a trustee of the American Dental Association and is president of the Southern Society of Orthodontists.

Philip E. Blackerby, of Battle Creek, Michigan, was recently elected a trustee of the American Fund for Dental Education. Dr. Blackerby is a retired vice president of the W. K. Kellogg Foundation, and past president of the American College of Dentists.

Daniel Verne of Cleveland Heights, Ohio; Olaf E. Langland of New Orleans, James A. O'Brien of Dubuque, Iowa and Richard A. Riedel of Seattle, Washington are among the rotating staff of the SS HOPE on its 1973 mission to Maceio, Brazil.

Joseph Pollack of East Orange, President of the New Jersey Dental Service Plan, has been named to the Board of Directors of the Delta Dental Plans Association as a representative of the American Dental Association. He replaces Hubert A. McGuirl who served with distinction on the Board for six years.

Lloyd M. Armstrong of Chicago has been appointed assistant secretary of the American Dental Association's Council on Dental Materials and Devices.

J. Menzies Campbell of Glasgow, Scotland had honorary membership in the Canadian Dental Association conferred upon him in June, in recognition of his work over many years as a dental historian. Dr. Donald Gullett, who happened to be in Britain, acted for the president, Dr. Peters, and made a special journey to Glasgow with the citation and the certificate, because chronic ill-health and advanced years prevented Dr. Menzies Campbell from travelling to the annual general meeting in Vancouver, when it would normally have been conferred.

# *The Objectives of the American College of Dentists*

The American College of Dentists in order to promote the highest ideals in health care, advance the standards and efficiency of dentistry, develop good human relations and understanding and extend the benefits of dental health to the greatest number, declares and adopts the following principles and ideals as ways and means for the attainment of these goals.

(a) To urge the extension and improvement of measures for the control and prevention of oral disorders;

(b) To encourage qualified persons to consider a career in dentistry so that dental health services will be available to all and to urge broad preparation for such a career at all educational levels;

(c) To encourage graduate studies and continuing educational efforts by dentists and auxiliaries;

(d) To encourage, stimulate and promote research;

(e) Through sound public health education, to improve the public understanding and appreciation of oral health service and its importance to the optimum health of the patient;

(f) To encourage the free exchange of ideas and experiences in the interest of better service to the patient;

(g) To cooperate with other groups for the advancement of interprofessional relationships in the interest of the public; and

(h) To make visible to the professional man the extent of his responsibilities to the community as well as to the field of health service and to urge his acceptance of them;

(i) In order to give encouragement to individuals to further these objectives, and to recognize meritorious achievements and potentials for contributions in dental science, art, education, literature, human relations and other areas that contribute to the human welfare and the promotion of these objectives—by conferring Fellowship in the College on such persons properly selected to receive such honor.



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