the Journal of the American College of Dentists

Auxiliary Personnel

Dental Licensure

Student Attitudes

Forensic Dentistry

JULY 1967

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A QUARTERLY PRESENTING IDEAS IN DENTISTRY

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Editorials

More Highly Qualified Dental Students

The American Dental Association and the American Association of Dental Schools continually are increasing their efforts to attract young persons to careers in dentistry. The number of students taking the ADA Dental Aptitude Test is increasing yearly; there were 8,408 in the 1966 testing period. Dental school enrollment is at a record high. Ralph L. Ireland, immediate past-president of the AADS, stated in March that, "The number of freshman students enrolled in the 49 U. S. dental schools reached 3,942 this year, an increase of 3.7 per cent over the previous year. In addition, total enrollment jumped 3 per cent with 14,421 students presently enrolled in the 4-year curriculum."

So it would appear that there is no urgent need to direct recruitment efforts toward the goal of increasing the *number* of dental school applicants. However, it is generally recognized that recruitment efforts should still be directed toward increasing the number of *highly qualified* young people entering dental school.

More students will always be needed in dentistry who possess most of the traits and qualifications once enumerated by an ACD Committee on Education and Recruitment:

An interest in people and a desire to be of service to them
Dependability, honesty, and tactfulness
An interest in science
Better than average manual dexterity
Resourcefulness and a desire for accuracy in the work done
A pleasing personality
Willingness and capability to accept responsibility
Ambitious and progressive, yet humble enough to recognize personal shortcomings

An esthetic nature and a keen sense of perception
An intelligent inquiring mind and a social conscience
The ability to be able to communicate well

Louis G. Terkla, currently chairman of the ACD Committee on Education and Dean, University of Oregon Dental School, once commented:

> Generally, the qualities necessary to become a successful dentist are little different than those which would bring success in any other intellectual endeavor. High on the list of desirable qualities is integrity of character. Soundness of character based upon high moral and ethical standards are looked for in any professional person. The dental student should be a refined and cultured individual who has an appreciation of dignity, an acute sense of responsibility, dedication to service, an aspiration to professional accomplishment, and an inclination toward scholarship. Such a student will mature readily, socially and generally, and will possess most of the individual qualities which both the public and his chosen profession expect of him.

These are highly idealistic attitudes, and many more could be listed. Also, no single person could possess them entirely. Yet they are important and are basic qualifications that should be sought for in persons being guided into dentistry as a career.

Fellows of the College should become individually involved in urging exceptionally well qualified young people to consider becoming dentists. William P. Schoen, Dean of Loyola University School of Dentistry at Chicago, writing in these pages in March 1963, said:

> In the past it was common and wonderful, for dentists to select fine young men and women from among their patients and suggest to them dentistry as a career. Some men are still doing this because many students in dental school today state that they were motivated by a dentist. However, there seems to be less and less of this motivation by dentists. . . . To interest an outstanding boy or girl in becoming a dentist is but one more of the many responsibilities and obligations we assumed when we were granted the degree of Doctor of Dental Surgery—and when Fellowship in the College was conferred on us.

T.McB.

Here, a dental educator discusses a wide range of the auxiliary problem—need, demand, utilization, assignment of additional duties, curriculum design and training program, and the time for action. Although this paper was read to a group of Latin American educators, dentists generally should have no difficulty noting the implications for this country. United States readers will find it timely and pertinent.

Auxiliary Personnel—American Dentistry at a Crossroad?

ROY T. DUROCHER, D.D.S.

The Profession, Health Needs, and Utilization of Auxiliaries

IS dentistry in the Americas at a crossroad? Unwise it may be to generalize about a vast geographical area, a great number of countries, and a legionary population. Latin America is composed of many nations, each with its own set of circumstances and goals (1); even the states within the United States of America, contrary to what you may believe, in many instances have their own peculiar socioeconomic problems (2). However, cross-cultural research indicates that despite considerable diversity all cultures do have common denominators (3). It is my belief that some observations in regard to auxiliary health personnel are sufficiently applicable in all the Americas to be valid. I can only hope that I will not overgeneralize.

What comprises the crossroad? The vested interests of the profes-

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Presented at the Third Latin American Seminar on Dental Education, at Petropolis, Brazil, November 29, 1966. The Seminar was sponsored by the Pan American Health Organization and the World Health Organization.

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sion on the one hand, and the health needs of Americans on the other; and the turning point of decision is whether we shall continue to have the health problems of a society await the vested interests of the profession or whether we shall now turn and head straightforwardly, with determination, down the road along which the requirements of the people lie.

Vested interests have had a great influence upon the development of the profession. This is understandable and to an extent, acceptable. There is no more natural motivating factor than self-preservation, and survival for a profession requires development. Unfortunately, however, controls which were deemed necessary to assure growth have impeded fulfillment of health needs. For example, in the early stages of development when the needs were greatest, the assignment of health care functions was extremely guarded. Indeed, the interrelationship of health requirements, vested interests and growth of a profession, and utilization of auxiliaries appears to be somewhat of a paradox.

In meeting the exigencies of the present and in anticipation of those of the future, a historical perspective is valuable. In regard to the historical development of the profession and of the utilization of auxiliaries, I quote and stress the description of evolutionary stages ascribed to dentistry in 1958 by a WHO Expert Committee on Auxiliary Dental Personnel. This group stated that the following stages had taken place or were taking place in various parts of the world.

> Stage III: *Initial professionalization.* Courses of formal training, with a duration of one to two years, are organized by the dental practitioners, who are united as groups or a guild. Before admission to the profession, candidates have to meet the requirements imposed by the guild. The group of persons practicing dentistry takes on a formal character and a dental profession comes into being. . . .
>
> Stage IV: *Intermediate professionalization.* Independent dental schools are established at the university level. Dental courses are increased in length, being now from three to six years. The minimum requirement for admission is complete secondary education. Professional associations become stronger, owing to the increase in the numbers of their members, their improved standing in the community, and the university standards of education of dentists. . . .
>
> *The utilization of certain types of auxiliary personnel, such as the chairside assistant . . . becomes firmly established.* [italics supplied] Courses of training and regulations are established by the profession for its auxiliaries.
>
> Stage V: *Advanced professionalization.* Dentistry acquires full recognition as a health profession. Dental education becomes more balanced, with an increasing emphasis laid on the biological sciences. Post-graduate dental education is

developed and the number of dental specialties increases. Dentistry becomes strongly organized and institutionalized. . . .

New types of auxiliary personnel such as the dental hygienist and the school dental nurse are trained under the control and supervision of the dentist for tasks specifically delegated. [italics supplied] The complexity of the tasks delegated and the degree of freedom to practise vary from one country to another. Countries which train auxiliaries for curative and preventive procedures may restrict such personnel to government employment. Countries which train them only for preventive procedures may allow them to work in private practice (4).

It is well that the utilization of auxiliary personnel be viewed in the light of the evolution of a health profession. Some might argue that a profession's development is the only factor to consider in weighing a decision in regard to the use of auxiliaries. But is it? *The decision on auxiliaries should be made mainly on the basis of the needs of society.*

As much as one might be disposed to consider the subjection of the development of auxiliaries to the growth of a profession as being axiomatic, it is my opinion that the development of auxiliaries has lagged too far behind the growth of the profession. My point seems to have been very much implied by the governments of the developing countries who participted in the Eighteenth World Health Assembly in 1965. In enumerating their health problems, they stated that "the remedy lay in the expansion of an existing medical school . . . or the creation of new medical faculties. . . . But the great demand is undoubtedly for schools for . . . auxiliary personnel . . ." (5).

In other words, I am saying this: There seems to have been a direct relationship between the evolution of a profession and the development of auxiliaries. But I am raising the question: If the real interest of a profession is in the needs of the people, must the profession in a particular country be in an advanced stage before auxiliaries, including those for preventive and *curative* measures, are trained? (Lest I be misunderstood, let me immediately state that I am referring to auxiliaries to whom tasks are assigned but for which the dentist continues to have the responsibility.) Perhaps the answer is quite in the negative, as again implied by discussions related to the 1965 World Health Assembly. "*Even* [italics supplied] in some developed countries, personnel who have had a training somewhat shorter and less comprehensive than that undergone by the full-qualified professional man or woman are beginning to be employed to an increasing extent. . . . In the developing countries it was felt

that because of the present dearth of professional personnel, . . . the use of auxiliaries on a larger scale was the only practical means of providing health services . . ." (5).

Needs, Utilization of Auxiliaries, and Assignment of Tasks

As we discussed in Mexico at the Second Latin American Seminar on Dental Education, the objectives of a curriculum in the health professions must be derived from the health needs of the society for which the educational program exists. True; completely meeting the overwhelming requirements in the Americas may be impossible for some time. Although broad social and economic reforms also may be necessary, the oral health problem lies to a considerable extent in manpower. The deficiencies in the Americas, especially in the less developed countries, are too great to be met by a curriculum which expects its sole product—the dentist—to personally perform the entire range of necessary tasks. Manpower could be greatly increased if we were to recognize that all of the services that dentistry can and should provide need not be actually performed by only one kind of person.

As a prelude to some mention of the type of procedures to which I refer, I make the point that there is a basic distinction between carrying out a technical operation on the one hand and on the other, truly understanding why it is to be performed and comprehending the scientific basis for it. It is becoming generally accepted that the real challenges for the professional person are those problems which require for solution a *depth* of understanding. There is more for the dentist to do with his education and skills than many of the routine repetitive technical procedures. For instance, to avoid having the latter done on a patchwork basis, it is necessary to assess the patient's problems from the vantage point of a comprehensive diagnosis and a plan of integrated care which will take into account the individual's entire person and his sociocultural milieu. The *dentist* must discover the complex factors underlying the patient's problems. Before a treatment can be executed, the situation must be carefully analyzed, available knowledge synthesized, and judgment crystallized with all processes resulting in a decision as to what to do. This means then that the dentist must possess an insight into human problems. It is for this that higher education, it is for this that professional education was primarily intended.

Challenges worthy of the dentist's personal competence also include intelligent and efficient cooperation with the allied professions, care of soft tissue and osseous diseases, management of orofacial abnormalities of development and growth. Of course, there are the more intricate oral surgical problems—dental and non-dental—which require superior manual skills. And soon there will be the need for masterminding the dental health team.

In contradistinction to these tasks is the *execution* of procedures which frequently require nothing more than a motor skill, as well developed and coordinated as it must be but not requiring the higher level of mental activity necessary for arriving at judgments in making a correct diagnosis and plan of treatment and supervising a course of treatment.

The distinction does not end with the nature of the tasks but it must also be made in regard to the education or training necessary for their actual execution. There is hardly a person who has studied the problems of economic and social growth, health, human resources, and education who has not expressed the opinion that there has been a misuse of talent in the professions. A typical observation is that made by an economist at the 1961 Policy Conference on Economic Growth and Investment in Education sponsored by the Organisation for Economic Co-operation and Development.

> In all modernizing countries there is likely to be a shortage of highly educated professional manpower such as scientists . . . veterinarians, engineers, and doctors. . . . And, ironically, their skills are seldom used effectively. . . . Doctors may spend long hours making the most routine medical tests. The obvious reason is that the shortage of technicians, nurses, . . . and other subprofessional personnel is generally even more critical than that of fully qualified professionals. For this there are several explanations: first, the modernizing countries fail to recognize that the requirements for this category of manpower exceed by many times those for senior professional personnel . . . (6).

Although applicable to a lesser degree, it appears to me that the preceding statement can also be made in regard to so-called modern or developed countries.

In the light of expanded scientific knowledge and improved techniques, increasing requirements and demands for services, and changing sociocultural thought, dentistry must consider assigning technical tasks beyond the sterilization and passing of instruments. The tasks could include, for example, the retraction of the cheeks,

the suctioning of intraoral debris, the scaling of teeth, the removal of cement from newly crowned teeth, the placement of amalgam into a cavity preparation, or indeed, even the cutting of at least the routine cavity preparation.

Under the sponsorship of the Agency for International Development, a group of experts recently participated in a project for assessing health manpower the world over. They had this to say: "There is [a] . . . rapidly growing recognition of the need for training more critically needed personnel receiving less sophisticated training . . . such as medical assistants, nursing assistants, technicians, midwives, et al, in numbers adequate to provide services widely and for many years to come" (7). In developed countries already the work of each physician is supported by some 10 to 15 other trained persons (7). Moreover, let me cite some examples of pilot programs or discussions now in progress in the United States which relate to auxiliaries in the professions. At the University of Nebraska there is a bachelor of science degree program (four years) to educate persons to administer psychological tests and even to evaluate some of the simpler tests. Originally these tasks were sacred to the domain of the doctor of philosophy (seven to eight years) and later, to the master of science (five to six years). I am sure you are aware of the long period of education and training for the psychiatrist.

There is now serious discussion about developing a bachelor of science degree program to produce "lay" psychotherapists who will render *technical* treatment in the field of psychiatry. At the University of Pittsburgh, secondary school graduates (a total of twelve years of education) are being given two years of *technical training* to serve as "mental health technicians" in comprehensive child care programs. Social workers, who normally possess the master of science degree, are asking themselves whether five or six years of university education are necessary to all of the work that they do, and they are discussing the idea of a four-year program (bachelor of science) to produce a "social work aide."

Needs and Demands

So far I have reiterated the matter of the needs of society in several instances. Invariably, in discussions concerning the meeting of needs, the converse argument of demands arises. That is to say, the argument is presented that manpower should be determined in

terms of the demands not the needs of society. Demands for health services will perhaps be influenced by at least four factors: the layman's ability to determine that he has health deficiencies; his awareness of the extent to which it is possible that these deficiencies can be met by the health sciences; his concern over the relationship of his need to his social involvement; his ability to obtain services to satisfy his needs. Barometers for forecasting demands determined by these factors in North America are rather clearcut. Federal legislation, labor union contracts, and other third-party mechanisms already have made it possible for services to be available to people previously unable to obtain them. Continually expanding communications media will focus the layman's attention on his needs, on the social ferment, and on the knowledge and skills of the health professions.

Since I am not an expert in Latin American affairs, it is difficult for me to assess the matter of demands in Latin America. However, I have noted some observations which may offer some indication of what the health professions here can anticipate. An authority on Brazil, for instance, has indicated that "the difference between the actual plane on which Brazilian masses are living and that which they now feel entitled to has increased greatly in the last quarter century" (8). A missionary has written of the great care which the very poor in Latin America take to improve the condition of their lives (9). Again in Brazil, it has been said that families will wait in line for days at the opening of schools in an attempt to get their children in (6). UNESCO reports that many countries have laws which are intended to overcome illiteracy, and then that more powerful incentives, such as prospects of a better job and higher pay, come from the people themselves (10). Two stations for educational television in Colombia are expected to reach 85 per cent of that nation's population (11). The theme which continually reappears is more and better education. And history is well documented with events which exemplify the influential role of education upon demands by a populace.

Auxiliaries and the Dental Curriculum

Whether individuals of lesser education than that of dentists can perform intraoral procedures is no longer a problem for experimentation. The experiences with the dental hygienist in the United

States, the dental nurse in New Zealand and Malaya, the dental auxiliary in England, the dental therapist in the Canadian Armed Forces give ample evidence that the concept is feasible. The problem is no longer one of research but one of attitude on the part of the profession as it stands at this crossroad, and one of decision to move into action.

The most significant principle on which to act, I believe, is to establish that auxiliaries be *assimilated* into the profession as members of a total dental health unit, both in public health service and in private practice, and not added as an appendage out of the mainstream of the practice of the profession to treat some arbitrarily chosen group. The most promising approach for a long-range impact on the dentist's attitude is through the dental curriculum. Since the curriculum should be based on the exigencies of society, and there is sufficient evidence (7, 12, 13) that the needs of society dictate the use of auxiliaries, then the curriculum must be so designed that dental students are not only given instructions on how to utilize auxiliaries but are also given the opportunity of using them. Findings in educational research indicate that the utilization of auxiliaries in the dental school will imbue students not only with a correct concept of what in fact auxiliaries are, but also with an appropriate attitude about the contribution they can make to the team (14, 15).

Just as curriculum designers have recognized that biological and social knowledge are necessary for the dentist to meet the needs of the people; just as they have recognized that diagnostic tools such as radiographs and study casts are necessary; just as they have realized in some countries, especially in Europe, that dental laboratory technicians are necessary for the dental student, so must they come to realize that other auxiliaries must be included in his armamentarium. In this way he will learn to use, and will use, all those measures which will provide greater and better service for the total well-being of the patient.

Developing a Training Program

On the other side of the coin, in pursuing our notion of assimilation, it would appear somewhat imperative, particularly in the early stages of formalizing auxiliary training, that the setting for the training programs should be the dental school. Reasons support-

ing this position should be self-evident in the following comments on the development of training programs.

What might be a plan of action in developing auxiliaries? Although there is sufficient evidence to justify the immediate use of auxiliaries, in long-range planning for a more refined and definitive program, two steps would be ideal: a comprehensive health survey to include the specific oral health needs of the country or region, and an analysis of tasks performed by dentistry. The health survey would make it possible to view and place oral health in its proper perspective—that it is in fact an aspect of total health, not only of the individual but of the nation. The task analysis would produce data which could serve as a baseline for determining the reassignment of specific procedures to be performed by the dentist personally and those to be executed by auxiliaries. Then, hopefully as part of a national health plan, in harmony with social, cultural, and economic factors, there would come the decision to identify the number of kinds of auxiliaries and the duties to be assigned to each group, if there were to be more than one. In this plan, it goes without saying that dental educators should play their customary influential role of leadership.

It may be of interest to you that as far back as 1960, a group of clinical department heads with whom I was associated suggested the following procedures, among others, for expanding the duties of the oral hygienist:

Reading of blood pressure

Impressions for study casts and final impressions for the construction of full and partial prostheses

Placing cement over calcium hydroxide in pulpotomy

Removing temporary filling and dressing in endodontic therapy

Taking coping transfer impression and bite registration in single crown restorations

Cementation of temporary crowns and bridges

Placement of silicate and amalgam

Carving and contouring of amalgam restorations

Carving of wax inlay pattern in direct technique

Placement of Class I and V gold foil

Removal of surgical sutures

Post-operative treatment of infected sockets

Cementation and removal of orthodontic bands

Subgingival scaling and curettage

The selection of operations for any one group of auxiliaries should be transposed into clear statements of objectives expressed in terms of the particular auxiliary's expected behavior. Of course, the entire range of a program's objectives may be more encompassing than the list of operations. For example, objectives might well include goals pertaining to the attitudes of auxiliaries. But the complete story related to the construction of objectives is far beyond the scope of this paper. It is one which would deserve detailed study by the actual curriculum planners.

One cautious guideline, however, deserves restatement. There should be no attempt made to transpose bodily objectives from another culture. Two classic examples come to mind. The West Indies have long adopted the pattern of medical education in England. In England, medical schools generally have had the goal of producing private practitioners. Anyone who wishes to spend his career in public health medicine must undertake postgraduate study. On the other hand, the majority of medical graduates in the West Indies directly enter public health services for which they have had insufficient education under their adopted British system. The other example is West Africa. There medical students must undergo a very lengthy education before they can practice at the legal age of 28. Then the physician finds himself treating mostly malaria, dysentery, influenza, arthritis, and venereal disease.

Objectives serve as the basis for the selection of curriculum content—or preferably expressed, the learning experiences. In other words, once it has been determined what the auxiliary should be able to do, to what degree she (or he) should be able to understand what she is doing, what attitudes she should have, then there is the need to decide what must be taught so that the objectives can be realized.

Although the preceding steps are no easy matter to accomplish, a most challenging undertaking is the designing of the curriculum—or organizing of the learning experiences. One cardinal omission by dental educators in designing curricula has been a disregard of pedagogical principles. In order to assure that an educational program be as sound as possible, principles of learning and teaching should be selected which would most likely result in the desired objectives. Otherwise, any satisfactory results are usually the conse-

quences of a great deal of conjecture resulting in much trial-and-error at the expense of valuable time and effort.

The basis for the organization of the learning experiences should not be primarily the intuition of the faculty nor the convenience of administrative structure. Howsoever technical the objectives for the auxiliary might be, there is still need for the student to be motivated, to be shown the relevance of what is being learned to the job she is expected to do upon completion of the training program. Among the most pertinent organizing elements, therefore, would be the interrelationships of the components of the curriculum. Among the most pertinent learning principles would be the meaningfulness of the content and exercises to the curriculum as a whole. For example, let us assume that an auxiliary would prepare cavities to receive silver amalgam and would insert the material. Would it be better to organize the learning exercises so that cutting and filling would be carried through completely over a rather lengthy period for any one class of cavity as a unit in itself; or would it be better to organize the content around surgical principles showing the relationship of the same principles to each cavity preparation? Again, what would be more meaningful to the end goal: cutting plaster monsters called "teeth" with a knife for hours and hours, or with a handpiece getting right to natural teeth in a phantom head mounted on the dental chair headrest? Shall the material, then, be presented on a disjointed basis, or shall it be organized around integrated meaningful learning experiences?

I pose explicitly the basic question which I have implied. In establishing an auxiliary training program does one simply transfer the design of the old curriculum for dental students?

Above all, pervading the entire program should be a broad perspective of dentistry, its objectives, its responsibilities, and its organizational structure. Through didactic methods, focus would be made on the specific role of that particular group of auxiliaries for whom this curriculum has been developed. The contribution of each group of dental personnel would be brought to bear on the patient's health through an integrated clinical experience of teamwork. In other words, whatever expedient divergence of the various curricula may have occurred would now converge in the dental school clinic in the form of teamwork for more and better service.

Such a plan would likely create an extremely important attitude

—the feeling among the auxiliaries that being a member of a dental health team is a career, not simply a transient job.

Placing the training program in the dental school offers at least one interesting by-product. Since educational innovations are always much more easily accomplished with new programs, initiating a program for auxiliaries provides an opportunity for testing new curriculum designs and teaching methods for more efficiency and better effectiveness which might be contemplated for the dental student's curriculum.

Finally, within the planning must be included mechanisms for evaluating the program in the light of stated objectives.

Utilization of Auxiliaries—Where, for Whom, and How Soon?

I cannot resist the temptation to mention again the environment in which trained auxiliaries would function—especially those who would in fact perform operations which heretofore have been left entirely to the dentist himself. I do not share the attitude that the utilization of these auxiliaries be confined to public health or school clinics. I am convinced that there is a place, indeed a need, for auxiliaries performing intraoral procedures in the private office. Furthermore, the assignment of these auxiliaries to patients by age is, to say the least, arbitrary if not erroneous.

There remains one basic question which I should like to raise. Must the utilization of auxiliaries be by an evolutionary process or by immediate innovation? My early reference to the danger of generalizaion may be particularly applicable here. However, it appears that in most of the Americas, time is not on the side of evolution. The *rate* of social, economic, and health growth is more important in underdeveloped areas than in others. At the 1961 Policy Conference on Economic Growth and Investment in Education it was said of the newly developing nations that "If [they] are to have accelerated growth—more rapid, more sweeping and more dramatic than the 'historical development' of the advanced nations—they must take deliberate, unprecedented, and sometimes drastic measures" (6). Nehru once said that it was necessary for India to learn to run before she could learn to walk.

Summary and Conclusion

Although a consideration of the utilization of auxiliaries must also take into account the social and economic climate of the country, it

must be remembered that professional duty is first a service and not primarily a control for the benefit of vested interests.

The oral health needs in the Americas are so pressing and the demands so imminent that immediate action appears to be in order. Planning for such action requires what may in the past have been considered unthinkable thoughts. It is indeed difficult for any institution to contemplate action which seemingly would shatter traditional values. But dentistry cannot remain insensitive to the needs of the world about it.

What is necessary to meet overwhelming health needs? As a Latin American university rector has suggested—after having categorized health personnel as constituting three layers: (1) specialists, (2) general practitioners, (3) auxiliaries—"One . . . floods the countryside not with low-grade dentists, but with high grade dental assistants. . . . If this policy is adopted, the corollary is to up-grade the training not only of the third layer, but also of the second layer. For the second layer professional man has many more third layer people working under him: he resigns to them more of the routine work, and concentrates to a greater extent on the more difficult task" (16).

These "third layer" persons must be assimilated into the profession. This goal would likely best be accomplished by setting their training programs in the dental school. Since the health-related curricula are based on the needs of society, these curricula, through learning experiences in teamwork, must imbue the dental student and the auxiliary student with the notion that auxiliaries are one aspect of the dentist's armamentarium for greater and better service, not only in public service but in private practice and for all patients.

Mario M. Chaves has pointed out that undeveloped nations take pride in following standards of the developed country with which they are historically oriented, and that "It is therefore difficult to convince them that they should follow a given solution to their manpower problems which they know is not acceptable to their model country" (17). I heartily agree. However, I say that developing countries must be convinced that they need not be followers. They can be pioneers and leaders! Bridging the gap between needs, curriculum, and manpower by an intelligent, dispassionate approach to the utilization of auxiliaries affords them that opportunity. Should not you, the leaders of the profession in Latin America, grasp that opportunity?

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A dental school dean explores, with a reasoned and logical eye, current dental licensure procedures. He presents a definition of competency to practice dentistry, and he suggests methods by which the examination for licensure should be designed so that it can assess objectively whether or not the candidate meets these criteria.

A Tripartite Responsibility for Dental Licensure

JOHN J. SALLEY, D.D.S., Ph.D.

AT the 14th Annual Meeting of the Southern Conference of Dental Deans and Examiners, the central theme was "evaluation of methods to determine competency to practice dentistry." This and similar conferences provide to dental examiners and educators a most unique and challenging opportunity to work together toward wider horizons in the fields of education and licensure. Both groups, although performing different functions, share a common and fundamental objective—the improvement of dental and general health of the public.

Fulfillment of this broad objective by the dental educator indicates the presentation of a program embracing the two basic goals of a university community: the promotion of learning and public responsibility, with the greatest expenditure of time and energy on the former. To the dental examiner, achievement of this goal means

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that public responsibility should be foremost. This paper will explore some ideas which may promote an interdigitation of these slightly differing but complementary functions with the aim of strengthening and updating dental licensure procedures.

In the context of this paper, evaluation for competency to practice dentistry means that the candidate must possess at least three qualities—knowledge, skill, and judgment—or the what, how, and why in dental art and science, and it is for evaluation of these three qualities that an examination for licensure must be structured. Before proceeding further, however, the definitions of knowledge, skill, and judgment should be examined. Webster defines knowledge as:

> "A clear and certain perception of that which exists, or of truth and fact; the perception of the connection and agreement, or disagreement and repugnance, of our ideas."

Skill is defined as follows:

> "The familiar knowledge of any art and science, united with readiness and dexterity in execution or performance, or in the application of the art and science to practical purposes."

Finally, judgment is described as:

> "The act or process of the mind in comparing its ideas to find their agreement or disagreement, and to ascertain the truth; the process of examining facts and arguments to ascertain propriety and justice; the process of examining the relations between one proposition and another."

When these three definitions are placed together on paper from their widely separated positions in the dictionary, it is immediately apparent that they form a better than acceptable set of guidelines for what should be observed when evaluating for competence to conduct a dental practice. In fact, if one takes these three definitions of knowledge, skill, and judgment and attempts to combine them into a single, unified statement, perhaps competency to practice dentistry can be more closely defined as follows:

> The candidate must have a clear and certain perception of biologic, biotechnical, and other related truths and facts, the familiar knowledge of which will enable him to execute with readiness and dexterity the variety of procedures concerned with the prevention, diagnosis, and treatment of dental and oral disease. Moreover, he must demonstrate the ability to establish a balanced relationship between the art and the science of dentistry so that the best interests of his patient will be served with propriety and equity.

Assuming that this statement is an acceptable definition of competency to conduct a dental practice, the examination for licensure should be designed so that it can assess objectively whether or not the candidate meets these criteria. In order to determine where the profession stands with the present conventional state board examination, Table I illustrates the requirements for licensure examination by the 12 states represented in the Southern Conference. While com-

TABLE I

	Amalgam	*Inlay*	*Silicate*	*Foil*	*Crown and Bridge—Laboratory*	*Crown and Bridge—Clinic*	*Radiology*	*Oral Diagnosis*	*Periodontics*	*Pedodontics*	*Orthodontics*	*Oral Surgery*	*Prosthodontics—Laboratory*	*Prosthodontics—Clinic*	*Oral Pathology*	*Jurisprudence*	*National Board*	*Merit Examination*
Alabama	X	X	X		X								X				X	
Florida	X			X	X			X					X					
Georgia	X	X	X		X		X	X					X				X	
Kentucky	X		X or	X	X			X		X	X	X	X	X	X	X	X	
Louisiana	X	X	X		X		X or	X				X	X	X			X	
Maryland	X	X	or	X	X		X	X				X	X	X		X	X	X
Mississippi*	X	X			X								X					
North Carolina	X	X			X		X	X				X	X				X	
South Carolina	X	X	X		X							X	X				X	
Tennessee	X	X	X		X	X							X	X			X	
Texas	X		X	X	X		X	X				X	X			X	X	
Virginia	X	X	or	X	X								X				X	X

* No patients required. All exercises performed in laboratory.

plete accuracy is not claimed for this table, it does represent a summation of board requirements as outlined in the 1966 edition of "Requirements and Registration Data: State Dental Examining Boards" published by the American Dental Association. The table reveals some interesting facts concerning the conventional method of examination for licensure.

In the area of knowledge, each state requires some form of written examination which is formulated either by the state board examiners or the National Board of Dental Examiners. In the Southern region all but two states—Florida and Mississippi—recognize the National Board for testing the candidate in the theory and science of dentistry. In testing for skill or applied knowledge of the art of dentistry, the Table demonstrates that this is where most of the effort of the state dental examiners is expended.

When one looks at the areas tested, however, it is immediately apparent that major emphasis is given to but three disciplines of clinical dentistry: operative dentistry, crown and bridge work or fixed prosthodontics, and complete denture prosthodontics. In spite of the fact that periodontal disease is the major cause of tooth loss in the American population today, no state in this region examines directly in this important area. Likewise, in spite of the fact that 60 per cent of the children in this country have some degree of malocclusion, only Kentucky includes orthodontics in its examination.

Additionally, it has been said that pedodontics is the key to a well-founded and continuing program of preventive dental practice, and yet Kentucky again is the only state in the region which includes this on its examination, and in this instance it is grouped with operative dentistry as a complex restoration on a deciduous molar.

While operative dentistry is universally included, and indeed represents a most important area of dental practice, the usual board examination is so structured, through the candidate's choice of teeth for restoration, that both the amalgam and inlay restorations are placed quite often in the upper left first and second premolars, especially if the candidate is right-handed. This rather commonly observed practice leads one to question the validity of the typical testing procedure for this all-important phase of restorative dentistry. With respect to testing for judgment, using the present state board examination as the test vehicle, it would appear that only two states in the region—Maryland and Virginia—have instituted

examining procedures which have begun to evaluate reliably the candidate's ability to demonstrate the process of reasoning by which he takes previously learned principles, practices, and propositions and arrives at a tenable conclusion.

This is accomplished in the merit examination where the candidate, in a seminar-type setting, presents a case or cases which he has successfully treated previously. He is questioned by the examiners on any number of aspects of the case, ranging from diagnosis and treatment planning through preventive procedures and the rationale for his approach to definitive treatment in the broad area of restorative dentistry. Although a certain insight relating to judgment can be gained by an examiner when he observes the restoration of a carious lesion on the distal surface of a maxillary left first premolar, his view of this most important quality, which in turn is so vital to a competent dental practice, is far too limited to make any objective and valid evaluation.

In the seven states which list a requirement in the field of oral diagnosis, some testing for judgment is done, but most often this is either not the heavily weighted part of the examination, or it is used primarily to determine the quality of the skill examination in operative dentistry.

Review of Table I has made it rather apparent that they do not completely test for competency to practice dentistry according to modern concepts. This statement is not meant to infer that the conventional examination is useless, but rather that it is far too limited insofar as forming the basis for a reliable evaluation of knowledge, skill, and judgment is concerned. To strengthen state board licensing procedures in both breadth and depth, a cooperative union of three units within the dental profession is proposed. These are the state boards of dental examiners, the National Board of Dental Examiners, and the schools of dentistry.

Keeping to the definition of competency to practice outlined previously, the following is a proposal for merger of the three units, with the goal of establishing a more comprehensive procedure for dental licensure. Because knowledge, skill, and judgment represent three distinct learned or acquired behavior patterns, it may be appropriate to discuss each one separately, bearing in mind, however, that together they mean competency.

When testing for knowledge, a number of methods are available.

The simplest of these is to have the student or applicant regurgitate factual material which he often learns by rote memorization. In the opinion of many, this is the least desirable method to use but is a case in point on many written examinations formulated by state boards. Typical questions are as follows:

1. Name and give the formuli for the amino acids.
2. List the branches of the 5th cranial nerve.
3. Describe the circle of Willis.
4. Name and give the origin and insertion of the muscles of mastication.
5. Classify tumors of odontogenic origin.
6. Outline the glycolytic cycle.
7. List the causes of a pulmonary abscess.

Knowing the favorite questions of a particular group of examiners, it is not difficult for the applicant temporarily to imbed these facts in his mind until the time of the examination and then promptly to forget them. Another popular line of questioning utilizes the essay question: "Describe histologically the periodontal pocket," or "Discuss and describe the etiology and pathogenesis of dental caries." In this instance the burden of proof falls completely on the examiner who, if he is to grade objectively one of these questions, must have an extensive set of criteria known both to himself and the student or candidate, in addition to a considerable amount of time available for reading and evaluation.

It is for these and other reasons that the National Board examinations have gained rather wide acceptance in the last 10 to 15 years, and it can be said with some degree of assurance that the battery of tests formulated each year by this agency of the ADA provides a far more comprehensive and current means for appraisal of knowledge of dentistry. Test items which have been collected from faculties of all dental schools are carefully scrutinized by an appropriate test construction committee for relevancy and accuracy. They are then kept on file from year to year and, if chosen for use, are analyzed for difficulty and discrimination. The experience in both of these categories for each item is recorded so that future construction committees may either reuse the item, rephrase the question or its distractors if the experience has not been satisfactory, or discard it completely. Professional educators and experts in tests and measurements say unequivocally that constant item or question analysis is

mandatory if validity and reliability of an examination is to be maintained.

It can be conjectured that for a group of state board examiners to do this after each of their examinations would require the full-time effort of at least one member of the board trained in educational techniques. Anything less than this is not being fair to future examinees. The necessity for this constant appraisal and reappraisal suggests that an agency such as the National Board of Dental Examiners is best equipped to perform the testing, grading, and analysis of evaluation procedures which relate to the knowledge portion of competency. This is not to say that National Board examinations have been or are perfect, but they do represent a better consensus of current knowledge in the dental field than almost anything else available, and, more important, there is constant effort to improve them as a measure of both factual knowledge and the ability of the student to synthesize two or more facts to reach a conclusion. Hence, it can be reasonably predicted that in the not too distant future they will also become a useful instrument for testing judgment relating to scientific principles and facts.

In discussing testing for knowledge it was intimated that both subjective and objective testing have been used. When a test is devised to evaluate skill or the performance of a given procedure, invariably it is classified as a subjective type examination. In the case of performance of a dental procedure, student or applicant response is subject to wide variation even though a majority or all of the examinees are performing the same exercise, such as setting up teeth on an articulator. Therefore, evaluation of the examinee has to be done subjectively.

As a consequence, many experts in tests and measurements feel that even in the case of an experienced examiner, in order to be completely objective in his evaluation, he must have the opportunity to test the student on more than one occasion to arrive at an accurate assessment of that individual's ability. When an individual performs a highly skilled procedure, a number of factors affect the quality of his finished product at the time he performs. Some of these factors are inherent and acquired ability, attitude, motivation, and environment.

In the case of the conventional state board examination there must be added another all-important and sometimes decisive factor—the

patient, whose attitude and motivation can be as variable as those of the applicant. If an attempt is made to equate validity of a single subjective examination to the examinee's overall ability or competency in a field as broad as dentistry, serious questions can be raised insofar as accuracy of testing procedures is concerned.

Testing of this type in dentistry is not unlike an artist who wishes to be judged in an exhibition. In the first place, no artist exhibits only one or two examples of his work. Frequently an entire series of canvases will be shown which will demonstrate to the judges the same qualities looked for in an evaluation of competency to practice dentistry. Different paintings will show variations in ability, motivation, attitude, and environment. From their examination of many canvases, the judges can ascertain a pattern of thinking on the part of the artist as well as make some judgment relative to his skill in mixing pigments, brush technique, blending of colors, etc.

Dental examiners place themselves at a distinct disadvantage in comparison to their art judge confreres in that they are forced to make a most important decision concerning a professional career on the basis of a two- to three-day exposure to an applicant who has been tested on only a fraction of the broad spectrum of dental art. The painter's talent in placing an image on canvas, or the sculptor's talent in producing a handsome statue in marble or bronze, are not too different from what is commonly called the art of dentistry; therefore, it is suggested that in order to validly test for skills in dentistry a wide variety of exercises must be performed.

The performance of these exercises must be carried out over an extended period of time so that attitude and motivation can form a part of the total assessment. This approach is especially needed in dentistry where because of poor attitude, lack of integrity, lack of knowledge or judgment, a situation results wherein an extremely skillful operator places a perfectly prepared and contoured restoration, but in the process renders the pulp nonvital.

It is further suggested that to achieve validity, reliability, and reproducibility of results, state boards of dental examiners and dental educators work together toward establishing methods of measuring clinical dexterity and skills while the applicant is a student. This will insure evaluation of his performance not only in operative dentistry, crown and bridgework and prosthodontics, but in pedodontics, periodontics, preventive dentistry, diagnosis and

radiology, orthodontics, oral surgery, and endodontics as well. To qualify this suggestion more specifically, faculty evaluation of the candidate over a four-year period should be accepted as adequate assessment of his ability to practice dentistry.

If testing for knowledge can be done best through the National Board of Dental Examiners, and continuing evaluation of skills can be done most accurately in the dental schools, what is left for the state boards? The remaining quality to be evaluated is the most difficult and challenging part of the assessment for competency to practice dentistry: evaluation of the candidate's ability at exercising good judgment. In reality, good judgment in dental practice means a combining of the science and the art of dentistry. It means that the state examining board would serve as the final judge of competency by assessment of the candidate's process of reasoning through advancing by a regular chain of principles and procedures until he arrives at a valid conclusion. It means that individual state boards would be charged with the responsibility of determining whether or not a candidate has the grasp of dental practice in all of its entirety —a responsibility they have not been able to assume in using the conventional method of testing with most, if not all, of the emphasis on technical performance. It means a broadening of the examination procedure to reflect dentistry as a learned profession concerned with comprehensive dental services for management of the vast array of dental and oral diseases.

In support of this tripartite responsibility for evaluation of competence a few salient points gleaned from dental history should be mentioned. With respect to licensing boards, they were first established in the latter half of the nineteenth century to serve a vital and needed purpose. It was at this time in the evolution of dental education that great emphasis was on the proprietary dental school —an institution run for profit as well as education. Unfortunately, in more than one instance these institutions were not above the sale of a dental diploma with little or no education and training to back it up.

Although our colleagues in medical education suffered from this type of educational institution much earlier, it was not until the 1880's that the competition for students in dentistry began to lower the high standards set by the original Baltimore College of Dental Surgery at its founding in 1840. Sensing some public concern and

largely acting on their own volition, state dental associations in the 1880's petitioned their state governments to enact legislation to insure some form of quality control over the dentists practicing in their states. Thus, what are now the state boards of dental examiners were born.

There is no question that the formation of boards of dental examiners was a most necessary act as evidenced by the number of failures by candidates for admission to licensure between the early years of the boards' activities and the 1920's, when graduation from an accredited dental school was made a requirement for admission to the examination. The high failure rate undoubtedly reflected the large number of uneducated or partially educated individuals who desired to qualify to practice dentistry.

Another point of some significance in this brief history occurred when William J. Gies published his report in 1926 on the condition of dental schools in the United States (Carnegie Foundation for the Advancement of Teaching). The Gies Report was instrumental in closing a number of subquality proprietary dental schools, but, more important, eventually gave rise to the systematic and uniform program of dental school accreditation by the Council on Dental Education of the American Dental Association. Quite logically, this council is composed of three representatives each from the practicing profession, the American Association of Dental Examiners, and the American Association of Dental Schools.

The Gies Report accomplished still another thing for the dental profession: it strengthened the dental schools in all areas, but especially in the biologic sciences. State boards have recognized this through their delegation of testing for scientific knowledge to the National Board of Dental Examiners in 44 of the 53 political jurisdictions in the United States. Therefore, in all but nine states a beginning toward the tripartite responsibility for licensure has been made. In fact, a close analysis of this transfer of responsibility for testing for knowledge places it in the hands of dental education. If one examines the composition of the test construction committees utilized by the National Board, it is immediately apparent that all of the test constructors are dental educators, but with the necessary checks and balances through representation on the National Board Council by members of the American Association of Dental Exam-

iners and the American Dental Association as well as the American Association of Dental Schools.

In summary, it is suggested that along with successful completion of the National Boards, testing for skills be performed in a setting and over a protracted period of time so that accurate analysis of this phase of competency can be done more adequately. The logical location and time for this type of testing is when the candidate is performing a multiplicity of clinical and related procedures as a dental student. With respect to a test for judgment, there is little doubt that the dental teacher could readily deliver an opinion on this phase of competency; however, the dental examiner can quite logically assume this responsibility at the time of the plateau achieved by the candidate when he attains his dental degree.

This test for judgment could be designed in any number of ways. Assuming that the candidate has performed successfully on the National Boards and has been certified by the faculty as possessing the wide range of skills necessary to practice dentistry, the following procedure is proposed as one method for testing his judgment: the state board examiners could present the candidate with a case or cases which would be completely unknown to him. The candidate would be asked to evaluate photographs, study casts, radiographs, general and dental health histories, laboratory data, and all other pertinent information. After evaluation of these data he would be questioned either in writing or orally as to how he would manage this case. Exposing the candidate to a case not known to him previously would require him to draw upon his total experiences, and the results of his evaluation and proposed treatment plan would reflect his acquisition of judgment.

This type of examination would allow for broad questioning on the nature of the diseases treated including social, personal and ethnic factors, the materials or methods selected for treatment, the technics of treatment, the prognosis, the rationale for prevention and maintenance therapy. An examination of this type differs from the merit examination in that through presentation of an unknown case the examiner is testing the candidate's judgment alone and not that of the teachers who supervised the diagnosis, treatment planning, and treatment of patients whom he saw as a student. Through this medium of testing, the board member could structure his ques-

tions to evaluate the candidate's ability to weld together the art and the science of dentistry through the use of proper judgment, and thus give an examination which would reinforce modern concepts of dental education and practice.

Finally, the proposed broader method of testing for licensure has been described as a principle only. There are many obstacles in the path of its implementation, some of which are contained in the various state statutes regulating each board's functions. The transgression of time between 1880 and 1967 makes it mandatory, however, that these laws be revaluated and updated to meet the requirements of a profession which has shown almost unparalleled progress in the short span of the last decade. The students to be graduated and licensed this year will be practicing dentistry in the year 2000. To ponder on this fact alone places a most unique and challenging responsibility on dental examiner and dental educator alike.

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NOTES FROM "THE SURVEY OF DENTISTRY"
(American Council on Education—1961)

The Commission recommends that: An effective relationship between state licensing boards and the Council of the National Board of Dental Examiners be developed, and all states accept the results of the National Board examinations. (p. 167)

It is their [dental educators] belief that examiners, in the short span of a week or less, cannot judge the qualifications of a young graduate as competently as the faculty under whom he has studied for four years. (p. 397)

. . . the development and measurement of the clinical ability of dental graduates is rightfully the task of the schools. If this responsibility were given completely to the schools, there is every reason to believe that they would accept the total responsibility and would meet it satisfactorily. (p. 401)

Dental Students: Social Backgrounds and Attitudes

MARCEL A. FREDERICKS, Ph.D., and PAUL MUNDY, Ph.D.

DURING recent years, the task of recruiting and educating students into the dental profession has attracted the interest of social scientists (1). This interest has been well documented by studies such as those done by Quarantelli (2) who examined attitudes of dental students toward specialization and research; and the dental student image of the dentist-patient relationship. More and Kohn (3) concerned themselves with the students' motives for entering dentistry. Pavalko (1) investigated the social background and occupational perspectives of predental students. O'Shea, Lefcowitz, and Gray (4) focused on the sociologic perspective on the dental student. The present paper is concerned with the exploration of the possible socio-psychological aspects of social class backgrounds and some selected attitudes in dental students.

Method

The sample studied consisted of 86 freshman students attending a private, midwestern school of dentistry situated in a highly urbanized metropolitan area. Specifically, these 86 young men comprised the entering freshman class of 1965-66.*

The data for this study were gathered mainly through self-administered questionnaires and attitude inventories given in the first week of class. More data were obtained from interviews with the study subjects, and also from extensive participant-observations of

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* Originally there were 87 freshman dental students. One student was absent at the time when the questionnaire and attitude inventories were administered, reducing the total studied to 86.

the students in their school situations and in their living quarters. One of the authors of this paper lived in a dental fraternity throughout the school year 1965-66. All these data were subjected to both a qualitative and quantitative analysis. Certain socio-economic characteristics and attitudes have been selected for reporting in this paper.

The study subjects were first divided into five social classes on the basis of Hollingshead's two factor index of social position, based on their fathers' education and occupation (5). These social classes are: I-upper; II-upper middle; III-lower middle; IV-upper-lower; V-lower-lower.

For the purpose of analysis in our study Class II and Class III were combined into a single category comprised of 35 (41 per cent) subjects and Class IV and Class V into another comprised of 31 (36 per cent) subjects. Class I remained unchanged with 20 (23 per cent) subjects. After this regrouping the classes have been identified in our study simply as 1 (formerly I), 2 (formerly II and III), and 3 (formerly IV and V).

Social Background Characteristics

Of the 86 male dental students, 90 per cent were 20-24 years old, while 9 per cent were 25-29, and 1 per cent was 30 or older. Twenty-four per cent of the 86 students had entered dental school after having completed three years or less of undergraduate college. The majority of the subjects, 57 per cent, had finished a four-year college education; and 19 per cent had more than four years of higher education (not always graduate or professional, however).

The occupational backgrounds of the fathers of these dental students are indicated in Table I. Some 71.9 per cent of the respondents came from homes where the father was engaged in white-collar or non-manual work; 22.3 per cent had fathers occupied in blue-collar or manual work. This finding roughly parallels Pavalko's investigation of occupational backgrounds of predental students (1). Moreover, the present research showed that 3.4 per cent of the students had fathers who were dentists. Although this finding is significantly less than that which was yielded in More and Kohn's study of first-year dental students (8.2 per cent) (3), and Quarantelli (10 per cent) (6), who studied students at all levels of dental school education, it tends to support Pavalko's contention that "the proportion

TABLE I
OCCUPATION OF FATHERS OF FRESHMAN DENTAL STUDENTS BY PERCENTAGE DISTRIBUTION (N=86)

Occupational Category		*Per Cent*
Professional		37.2
Dentist	(3.4)	
Physician or Related to Medicine	(4.6)	
Semiprofessional or Technical		5.8
Managers, Proprietors, and Officials		18.5
Clerical and Sales		10.4
Skilled Workers, Craftsmen, and Foremen		11.6
Semiskilled Workers		2.3
Unskilled, Service, and Farm Workers		8.4
Other and No Data		5.8
Total		100.0

of recruits to dentistry whose fathers are dentists increases as the recruits proceed from predental to dental student status" (1). The findings concerning white-collar and blue-collar occupational backgrounds of dental students are approximately the same for students in medical schools as well (7). And sons have, by and large, aspired to occupations with the same or greater prestige than those of their fathers (8).

These freshman dental students came, in general, from families of relatively high educational attainment. Table II shows that about 32 per cent of their fathers had completed four years of college or some graduate or professional training.

An analysis of further breakdowns of responses to other questions indicate that, of the fathers of respondents in the sample, 5 per cent had a university degree in medicine, 6 per cent had a degree either in dentistry or pharmacy, and 2 per cent had earned Ph.D. degrees in natural sciences or some other discipline. And 6 per cent of the students had either a brother or sister with a D.D.S. degree. These findings bear close resemblance to Hollinshead's in his survey of 758 dental professionals (9).

Decision to Enter Dentistry

With some understanding of the social background of the freshman dental students in this study, one can then proceed to an analy-

TABLE II
EDUCATION OF THE PARENTS OF FRESHMAN DENTAL STUDENTS BY PERCENTAGE DISTRIBUTION (N=86)

Education	*Father*	*Mother*
Some Graduate or Professional Training	19.7	2.3
Completed Four-years College	12.8	9.3
One to Three Years of College	18.6	11.6
Completed Four-years High School	22.1	37.2
One to Three Years of High School	8.1	15.1
Eight Years of School or Less	16.3	13.9
Other or No Data	2.3	10.5
Total	99.9	99.9

sis of why dentistry attracted the respondents, what factors motivated their preclinical work, and what branches of dentistry they anticipate choosing. Tables III and IV indicate some answers to these questions. Specific breakdowns according to social class were not found useful here because of the very small degree of differences between the percentage choices of each class.

The reasons for making a decision to enter dentistry that were revealed in this research were very similar to those discovered by More and Kohn in their study of 3,500 freshman dental students in 1958 (3). The present research found that personal satisfaction and autonomy, the aspect of doing practical and manual work, the de-

TABLE III
DECISION FOR DENTISTRY OF FRESHMAN DENTAL STUDENTS BY PERCENTAGE DISTRIBUTION (N=86)

Basis for Decision of Dentistry	*Per Cent*
Desire for Personal Satisfaction and Independence	25.6
Desire to Work for and With People	14.0
Desire to Be Involved in Practical or Manual Work	18.6
Advice of Parents	8.1
Seeking Respect and Status in Community	11.6
Amount of Salary or Pay	6.9
Considering Dentistry an Interesting Career	5.8
Indicated Had a Reason but Did Not State Reason	4.7
No Data and Not Codeable	4.7
Total	100.0

sire to work with people, and concern for respect and community status were the first-through-fourth choices of students entering dentistry. More and Kohn's first four choices were identical but their order was changed to working with people, independence and satisfaction, respect and community status, and practical or manual work—in that order (3). Pavalko found that nearly two-thirds of his predental student sample felt some other occupation might be as satisfying as dentistry (1). The present research on dental students indicated that only 4.6 per cent of the 86 students would have preferred the life of a physician to that of a dentist. Other alternatives to their pursuit of dentistry were not asked of the respondents in the sample.

Table IV presents the preclinical motivating factors that were operative at the time of the survey in the lives of the freshman dental students. Although 65 per cent indicated personal satisfaction as their primary motivation for completing their preclinical years, 14 per cent were unsure of what would prompt them to maintain their interest during those years of study. In this they resembled, to some degree, entering medical students (10). This appears to be a critical finding, since Corwin has found motivation, arising from family, peer group, economic and social class pressures, as a vital support of vocational aspiration (11).

The type of practice and area of specialization preferred by dental students in the sample are not so clearly discerned. An analysis of the data indicates that 77 per cent of the 86 subjects were not sure what specialty they would like to pursue. This finding seems to substantiate Quarantelli's statement that "in more than rare instances, there

TABLE IV
FRESHMAN DENTAL STUDENTS' MOTIVATING FACTORS DURING PRECLINICAL YEARS BY PERCENTAGE DISTRIBUTION (N=86)

Chief Motivating Factor	*Per Cent*
Personal Satisfaction and Desire to Be a Dentist	65.1
Desire to Please Family or Friends	10.5
Example of Fellow Dental Students	1.1
Indicated Other Reasons	8.1
Not Sure of Motivating Factors	14.0
No Data and Not Codeable	1.2
Total	100.0

are beginning dental students who have no knowledge at all that there are specialties in dentistry" (2). Of the respondents who selected a specialty, 13 per cent mentioned oral surgery, and 10 per cent were distributed among orthodontics (5.8), pedodontics (2.1), and prosthetics (2.1).

Attitudes in Different Social Classes

It is not sufficient to describe the social class backgrounds of students in a dental school without examining differences that might exist between classes concerning attitudes toward aspects of a dentist's profession.

In the present study, little difference was found among students from different social classes in their decision to take up dentistry, or in their assessment of motivating factors during their preclinical years of study. Also, in terms of the respondents' attitude toward socialized medicine in the United States, an analysis of the data reveal that nine in ten were against the introduction of such a program for the future irrespective of their social class position. Similar findings were found in a study of medical students in a private, midwestern medical school (10).

The study subjects in all three social classes looked upon medicine and dentistry as high-prestige occupations. However, 87.1 per cent of Class 3 respondents viewed medicine and dentistry as prestigious in contrast to Class 1 (75.0 per cent) and Class 2 (74.3 per cent) respectively. Thus, irrespective of class differences, this finding does seem to indicate the relative strength of choice on the part of the dental students regarding their career. In this they resemble medical students (10).

When the 86 students were asked their reasons for selecting a certain profession as a prestigious one, the altruistic notion of needed service and healing work was more prevalent in the upper- and middle- than the lower-class students. On the other hand, the lower-class students were more likely to have selected a profession based on status conferment and respect in the community.

The 86 freshman dental students were also questioned regarding their feelings about race, education, and religion of their future patients in order to assess whether any of these factors could be influential in affecting a dentist's judgment of a patient as a person. It is interesting to note that middle- and lower-class dental students

TABLE V
SOCIAL CLASS ATTITUDE OF FRESHMAN DENTAL STUDENTS IN SAMPLE WITH REGARD TO SOME SELECTED FACTORS INFLUENCING THEIR JUDGMENT THAT A PATIENT IS A PERSON (N=86)

Selected Factors	*Social Class Categories* CLASS 1 *Per Cent*	CLASS 2 *Per Cent*	CLASS 3 *Per Cent*
Race			
Important	5.0	14.3	9.7
Not Important	70.0	68.6	70.9
No Opinion	25.0	14.3	19.4
No Data and Not Codeable	—	2.8	—
Total	100.0	100.0	100.0
Education			
Important	20.0	40.0	32.3
Not Important	75.0	52.1	61.3
No Opinion	5.0	5.8	6.4
No Data and Not Codeable	—	2.1	—
Total	100.0	100.0	100.0
Religion			
Important	5.0	22.9	6.4
Not Important	90.0	60.0	90.4
No Opinion	5.0	14.3	3.2
No Data and Not Codeable	—	2.8	—
Total	100.0	100.0	100.0

were more likely to consider race, education, and religion as important factors while upper-class students were more consistently emphatic in not considering these factors as important (Table V).

Summary

In summarizing this study of freshman dental students, certain points should be highlighted:

1. This paper has presented a summary description of the social class backgrounds, and some selected attitudes, of freshman students in a dental school. It has not considered the variations that might exist either with upperclassmen in the same school or with students from other dental schools. The latter two aspects of comparisons will be considered in other papers.

2. More than two-thirds of the students came from white-collar families, based on the occupational status of their fathers. More than 50 per cent had fathers who had completed at least some college education. Both findings substantiated previous studies concerning the above-average socio-economic backgrounds of dental students.

3. Personal satisfaction and autonomy, manual work, helping people, and respect of the community were asserted to be the four primary motives (in that order) for making a decision to enter dentistry. When asked what factors would motivate them in the preclinical course of studies, over two-thirds indicated a stipulated motivating factor, findings which suggest a fair measure of commitment to dentistry in the plans of these students.

4. A low degree of interest in specialization as to future careers in dentistry was indicated by the students, a finding which might suggest a fair measure of lack of knowledge that there are specialities in dentistry.

5. In examining the attitude of each social class toward socialized medicine in the United States, nine students in ten were against the introduction of such a program for the future, irrespective of class position, a finding which is somewhat similar to freshman medical students in the same institution.

6. Irrespective of class differences, the study subjects looked upon medicine and dentistry as high-prestige occupations. Over two-thirds indicated, however, that they would prefer the life of a dentist to that of a physician, a finding which suggests a fair degree of relative strength of choice on the part of the dental students regarding their career. Their reasons for selecting a certain profession were different between Classes 1 and 2 on the one hand, and Class 3 on the other.

7. Middle- and lower-class dental students were more likely to consider race, education, and religion as important factors affecting their judgment of a patient as a person. Upper-class students, on the other hand, were more consistently emphatic in not considering these factors as important.

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THE DENTAL UNDERGRADUATE IN CAREER GUIDANCE

Bringing the full story of dentistry and its opportunities to the person of high school years—and doing this on a person-to-person basis—will be increasingly important in future years, because of the intense competition all professions are entering to gain the best young people they can.

The specific nature of a dental vocation (as contrasted with the vague, general nature of others) is a distinct advantage in presenting this story to young aspirants. Finally, every effort must be made to recruit systematically through the student bodies of the dental schools. These young men who have "made the choice" are probably the most effective, enthusiastic persuaders of succeeding classes.—The dental student. Douglas M. More. J. Am. Col. Den. 28:35, March 1961.

JACK R. PARRISH, D.D.S.

Dentistry Tomorrow
—Challenge and Opportunity—

IN this fast-moving world, dentistry enjoys no magical immunity to change. Among the pressing problems which must be solved if we are to preserve professional integrity are these:

Providing dental care to vast new groups that traditionally have neither sought nor received it.

Maintaining high standards of treatment in the face of heavier patient loads.

Retaining for the profession the dominant role in planning and executing new programs for dental care.

Many outside the profession believe that we lack a social conscience, and that selfish attitudes dictate our actions. Our leaders recognize the need to dispel these beliefs. To be effective they need our backing.

Meeting these challenges will require a unified effort. Dental societies encompass all of the specialties and interests of the profession. Public health dentists and private practitioners must work together within professional organizations. And, for their resources of energy, imagination, and dedication, we must look particularly to today's young dental graduates, who will be the leaders of tomorrow.

To assess the attitudes of young people toward their responsibilities and opportunities, four freshman classes at The Ohio State University College of Dentistry were questioned over a four-year period. The students were advised that there were no right or wrong answers and that, if their answers were to be meaningful, honest expressions of conviction were needed. They were assured that the

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This study was conducted by the College of Dentistry with the cooperation of the College of Education and the Department of Psychology, Ohio State University.

information would have no effect on their grades. We received full cooperation.

Eight statements were examined in this study. The students were asked to reflect their attitude with one of six choices:

1. Strongly Agree
2. Moderately Agree
3. Slightly Agree
4. Slightly Disagree
5. Moderately Disagree
6. Strongly Disagree

"I Like to Make My Own Decisions"

	Classes				
	1966	1967	1968	1969	TOTALS
Strongly Agree	85	87	71	91	334
Moderately Agree	55	55	65	42	217
Slightly Agree	8	6	11	13	38
Slightly Disagree	2	1	1	3	7
Moderately Disagree	0	0	1	0	1
Strongly Disagree	0	0	1	0	1

This concerns one of our freedoms, and the results should surprise no one. These young people do value individual rights. Our profession provides an avenue where individual initiative can meet with success. If we meet professional obligations we can preserve the right to make our own decisions.

"Becoming a Member of a Profession Greatly Influenced My Selection of Dentistry as a Life Career"

	Classes				
	1966	1967	1968	1969	TOTALS
Strongly Agree	32	35	29	40	136
Moderately Agree	52	40	39	46	177
Slightly Agree	33	55	50	34	172
Slightly Disagree	10	6	11	12	39
Moderately Disagree	17	9	16	10	52
Strongly Disagree	6	5	4	8	23

Even at this early stage of dental careers a strong majority indicated the desire for professional status. Responsible actions are essential if dentistry is to maintain its image and to progress.

"THE FINANCIAL REWARDS OF DENTISTRY ARE REAL IMPORTANT TO ME"

	Classes				
	1966	1967	1968	1969	TOTALS
Strongly Agree	7	18	14	24	63
Moderately Agree	62	66	58	73	259
Slightly Agree	61	49	50	38	198
Slightly Disagree	13	8	14	4	39
Moderately Disagree	3	6	11	10	30
Strongly Disagree	4	3	3	1	11

On the basis of the above responses, our young people show an appreciation of financial rewards, but not to an unusual degree. Our profession, through hard work, does provide opportunities for success and security. There are both selfish and unselfish people anywhere you turn. We have some of both within our profession.

"I WAS NOT TOO INTERESTED IN THE SOCIAL SCIENCES WHILE IN COLLEGE"

	Classes				
	1966	1967	1968	1969	TOTALS
Strongly Agree	14	12	7	7	40
Moderately Agree	27	26	21	22	96
Slightly Agree	22	23	28	22	95
Slightly Disagree	25	28	28	26	107
Moderately Disagree	41	35	39	31	146
Strongly Disagree	21	26	27	42	116

An encouraging majority indicates an interest in the social science aspect of their college education. Perhaps a trend toward more awareness can be noted. The fact that a large minority lacks interest may lend credence to a feeling that certain welfare aspects of health programs are not understood. The fact that it is nearly impossible to separate a person's health from his general welfare should be apparent to all.

"When I Am a Dentist, I Would Like to Be Active in Community Affairs"

	Classes				
	1966	1967	1968	1969	TOTALS
Strongly Agree	49	58	55	74	236
Moderately Agree	69	59	56	44	228
Slightly Agree	29	25	31	27	112
Slightly Disagree	2	4	6	4	16
Moderately Disagree	1	2	2	0	5
Strongly Disagree	0	1	0	1	2

The need for strengthening our professional image, through community participation by dentists, was the reason for the question. There may be some slight significance in the fact that responses from later classes show a little more interest in community involvement. It would be interesting to compare the responses of dental students with those of young people preparing for other professions, such as medicine, engineering, and law.

It is hoped that the demands placed upon practicing dentists will not find them "too pooped to participate." They should recognize the opportunities and responsibilities of each educated person to serve his community.

"I Really Will Enjoy Working With People and Helping Them"

	Classes				
	1966	1967	1968	1969	TOTALS
Strongly Agree	85	87	71	91	334
Moderately Agree	55	55	65	42	217
Slightly Agree	8	6	11	13	38
Slightly Disagree	2	1	1	3	7
Moderately Disagree	0	0	1	0	1
Strongly Disagree	0	1	0	0	1

These students seem to have the proper attitude. They seem to sense the satisfaction that is felt by the dentist in helping his patient. To enjoy the proper relationship with the patient permits more dentistry to be performed. However, a few may find troubles ahead.

"ONE OF MY STRONG POINTS IS GETTING ALONG WITH PEOPLE"

		Classes			
	1966	1967	1968	1969	TOTALS
Strongly Agree		60	45	51	156
Moderately Agree	Not	71	83	67	221
Slightly Agree	Presented	17	19	25	61
Slightly Disagree	to This	0	2	5	7
Moderately Disagree	Class	0	1	2	3
Strongly Disagree		2	0	0	2

The attitudes expressed by the students are encouraging. We hope that the small minorities whose responses indicate their failure to get along will be as inconspicuous as possible. The importance of a good relationship between the public and the dental profession cannot be over-emphasized.

"I ACCEPT CRITICISM VERY WELL"

		Classes			
	1966	1967	1968	1969	TOTALS
Strongly Agree	43	26	27	22	118
Moderately Agree	67	66	58	69	260
Slightly Agree	32	43	40	30	145
Slightly Disagree	6	11	19	19	55
Moderately Disagree	2	4	6	6	18
Strongly Disagree	0	0	0	4	4

Criticism often comes when our motives are not understood. We need strong, vigorous, and understanding leadership to present our views.

The information from these students indicates that a large majority desires the independence that the dental profession provides. They want to make their own decisions. This can be related to treating their own patients in the manner they deem proper. Our younger members are interested in the sociological aspects of their profession. They want to work within their community and with people to improve dental health. They want to earn a good living. Most believe that they will enjoy good rapport with the public.

Attitudes do vary. We have minorities who indicate feelings con-

trary to those of their colleagues. These should be expected among those valuing freedom of choice.

Presumably these young people would be offended if those outside the profession tried to tell them what comprises adequate dental care, how much of it will be done, and how much our time and training are worth.

The young people who responded to our survey indicate a readiness to meet their professional obligations.

It appears that tomorrow's dentistry will be in good hands.

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ON BECOMING A PROFESSIONAL MAN

The process of becoming a professional man is long and arduous. Viewing the whole thing as an endurance course, we can wonder why so many young men seem willing to submit themselves to its demands and indignities. There are affronts to be borne, for the young man remains a learner, rather than a performer, years after most of his contemporaries have entered full occupational and familial status in the community. Whatever age he reaches, the student in the academic system retains some aura of the term "school-boy." He must accept this role to some measure and persevere in it, putting aside the usual family and community participation in favor of hours spent with difficult, and often admittedly dull, books. The motives to account for this program of deferred gratification must be powerful ones deserving our intense study and understanding. The drive to give service, a central aim of dentistry as a health profession treating ills and preventing their occurrence, is insufficient to account fully for such sustained effort and self-denial. There must be other motives, some of which are possibly unrelated, or even opposed, to the basic purpose of the profession as it is established and justified to society. In Howard Becker's terms, the dental student probably has made a "side-bet" that his particular vocational choice will pay off for him in a variety of ways, only one of which involves the gratification to be found in service to mankind. —The dental student—approaching graduation, 1962. Douglas M. More. 29:118, September 1962.

Forensic Dentistry

HENRY A. SWANSON, D.D.S.

FORENSIC dentistry, or legal dentistry, should be of considerable importance to the dental profession because of its many possible complications. The next few days of this course will be devoted to the study of this complicated field of science. These opening remarks are intended to highlight some of the history of this interesting but not generally recognized area of dental science; also, an effort will be made to point out some facets of the dental profession's responsibilities in this matter.

There are two main phases of the subject: one pertains to jurisprudence, the other to forensic odontology. Jurisprudence requires legal knowledge and here most of us must be guided by the legal profession, so little will be said about it. Forensic odontology covers the identification of human remains through dental means found necessary for many and varied reasons. I use the term *forensic odontology* because the countries that have been most successful in developing this science, as well as the Federation Dentaire Internationale (FDI), have adopted it as a proper designation.

Detailed methods and procedures are essential to any investigation of mutilated or unknown bodies. We, as dentists, should keep in mind that the oral structures and oral restorations are many times the sole determining factors in identification. It is the result of a comparison between the records of physical characteristics found in an unknown or mutilated body, and corresponding characteristics known to have existed in a missing person.

Forensic dentistry developed simultaneously with forensic medicine, but with few exceptions and in few instances it has not been

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understood or recognized by the dental profession as one of its responsibilities. Early medical history records the work of many persons who were interested in determining the cause of death from a pathological point of view as well as from a medico-legal view. (Since presenting this paper I have noted two interesting items in the *British Dental Journal* "Letters to the Editor," concerning identification by oral means. Mr. G. T. Emery (Jan. 3, 1967) stated that the first record of identification from teeth appears to be in the Chronicle of Jean de Troyes concerning the body of Charles the Bold in 1477. A later letter by Mr. E. B. Barr (Feb. 7, 1967) reported that the veteran warrior John Talbot, Earl of Shrewsbury, in his eightieth year, fell in the battle of Castillon on July 17, 1453, and was identified only by his teeth.)

In medico-legal cases autopsies became important, and those charged with this responsibility were of necessity required to record every detail of the body under investigation.

Esmond R. Long, in his "History of American Pathology," stated (1) that, "The essential role of pathological anatomy in determining the cause of death in obscure cases was recognized in the American Colonies. A large proportion of the early autopsies in British America were medico-legal examinations. Post-mortem inspections by local physicians were not infrequent."

The first comprehensive instruction in medical jurisprudence in the United States was given in New York in the early nineteenth century by James S. Stringham (1775-1817), Professor of Chemistry at Columbia University. After him came a host of medical professors who gave medical jurisprudence and forensic pathology a prominent place in medical instruction.

In 1815, Theodore Romeyn Beck (1791-1855) wrote a book on "Elements of Medical Jurisprudence" published in 1823. He devoted a chapter to the numerous causes of sudden death as well as traumatic fatalities. He discussed the duties of coroners, and stressed the need for thorough post-mortem examinations.

Other books on pathology and jurisprudence followed, written by outstanding men in medicine. Some of these men were pioneers in medical jurisprudence in a broad aspect, but not in forensic pathology as a specialized science. That discipline developed as the deficiencies in the coroner system became apparent. Advancement in the practice of forensic pathology was slow but steady, and those in the

field were recognized as authoritative in skill and training. The medical-examiner system, requiring medical training of the examiner, gradually replaced most of the old coroner system.

The medical examiner, with many changes, modifications, and modernization in the system over the years, has total jurisdiction and is responsible for the determination of the cause of death, and when necessary the identification of unknown bodies.

What role does dentistry play in forensic medicine or pathology? While medicine has the real responsibility for identification, the dental expert frequently is an important aid in that responsibility.

I have stated that forensic dentistry developed simultaneously with forensic medicine, and history reveals that dental structures have had an important place in many investigations of identification. Investigating teams, both military and civilian, in most instances have depended on on-the-scene civilian dentists for dental skill in identification where oral structures have been the only lead. It would seem logical in disasters, such as aircraft crashes, that a trained person in forensic odontology should be officially made a member of the investigating team; the team should not have to depend on the procurement of an untrained dentist or physician for this purpose.

Are dentists qualified as experts in forensic odontology? Some few are, but the majority are lacking in specific training with no knowledge of autopsy and identification procedures. It is a subject that has not been given much consideration in this country either by the profession or by dental schools. However, there are dentists who have served on disaster team investigations and have proved their abilities in the identification of crash victims. Some of these could well be classed as dental forensic experts and made available for such a service.

Forensic odontology is international in scope because of possible casualties, both individual and mass, that result from "intensified international traffic," destructive processes of nature, and war. International interest is increasing, and with men like Frykholm and Gustafson of Sweden, Keiser-Nielsen and Pederson of Denmark, David B. Scott of Cleveland, Viken Sassouni of Pittsburgh, and John J. Salley of Baltimore, much progress should be expected.

S. Keiser-Nielsen, with K. O. Frykholm and F. Strøm, has written (2) that it was universally regarded that the father of forensic odontology (the term used in Scandinavia) was Dr. Oscar Amoëdo, born

November 10, 1863. He continued, "Dr. Amoëdo was a native of Cuba and passed his dental degree in Habana. In 1889 he was nominated delegate to the 'First International Dental Congress' of the Federation Dentaire Internationale to be held that year in Paris. Professional life and activity in Paris appealed to him so much he decided to stay. He was to settle here for the rest of his days, a well known private practitioner, and an esteemed teacher at the Ecole Dentaire de Paris. He died on 25th September 1945." Further, "Dr. Amoëdo led a most active professional life. . . . Of more than 120 publications covering many varied subjects, his doctor's thesis: L'Art Dentaire en Medecine Legale (Masson et Cie, Paris, 1898) acquired world-wide recognition, also among the devotees of forensic medicine, it being the first treatise on forensic odontology as a subject in its own right."

Scandinavia has been in the forefront in the field of dental identification. It has been reported (2) that considerable ". . . progress has been gained in Scandinavia concerning the participation of dental experts in identification procedures." The organization of forensic dental cooperation in Scandinavia between the profession and the police authorities was made possible through persuasion and by convincing them that they should use routinely the particular knowledge of dental experts. Police departments in Norway, Sweden, and Denmark now have adopted the policy of including dentists in their investigation of missing persons and unknown bodies.

In these countries, all dental schools present 10 to 12 lectures a year on forensic odontology. It is also reported that research in this subject will soon be instituted. A Scandinavian Society of Forensic Odontology was formed in 1961. It has been instrumental in bringing about a rapid and free exchange of information and views among its membership.

At the February 1966 meeting of the Scientific Advisory Board of Consultants of the Armed Forces Institute, there was some discussion of the role dentistry plays in identification of bodies and a query was made relative to the development of a "manual on the proper utilization of teeth and dentures from the standpoint of identification of individuals in medico-legal cases." So far as is known no such handbook has been published in this country.

The FDI has been interested in this subject for many years, and has a Subcommittee on Forensic Odontology which meets and re-

ports at each annual Session of the Federation. One of the newer projects of this Subcommittee is the development of a handbook ". . . covering (a) an international directory of forensic dental experts, (b) a section on clinical and laboratory procedures in forensic odontology, and (c) a suitable list of references" (3).

David B. Scott, Chairman of this Subcommittee, reported in a personal communication (Sept. 1966):

"With regard to the FDI forensic odontology handbook, I can report the following: The Subcommittee is still active and I am still Chairman. The handbook is shaping up and it looks as if it will be more extensive than originally planned. Søren Keiser-Nielsen, from Copenhagen, and I, have finished the reference list and tentative international roster of knowledgeable workers. He has prepared a first draft of the major part of the text. . . . I am working on this at present and will add the parts I promised to draft. At this point we will give the draft a trial run with the rest of the Committee.

"There was a good deal of discussion about this activity at the last FDI meeting in Israel, which Keiser-Nielsen attended. The scientific commission and the administration, including Drs. Pedersen and Leatherman, are very enthusiastic and are prepared to give further and full support to publication. We are thinking in terms of a loose-leaf prototype which will be easy to update." We will await with great interest the appearance of this publication.

Forensic identification information has been available only through articles in periodicals until the publication of a recent book (4) on "Forensic Odontology," by Gösta Gustafson, Oral Pathologist, University of Lund, Sweden. It is a most commendable text covering all phases of dental identification methods and procedures, as well as the problems of governmental jurisdiction and professional responsibility.

A recent article (5) by Harmeling, Schuh, and Humphreys, covered in considerable detail their dental methods and procedures with the Medical Disaster Team following the crash of a plane near the Greater Cincinnati Airport, November 8, 1965, in which 57 people perished. Forty-five of this group were so mutilated that their bodies could only be identified through dental means. The planned procedures outlined in their article produced results, and may serve as a guide to other dentists placed in a similar position on investigating teams.

There has been no concerted interest in this field by any group in the United States with the exception of this present course and the three previous courses at the Armed Forces Institute of Pathology. These postgraduate courses have been attended by persons whose interest in the field may have been stirred by an experience requiring identification, a requirement of a position held, or a desire to become knowledgeable in forensic dentistry. Whatever the reason, these courses have prepared a selected group for a service in an emergency, catastrophe, or when identification of bodies is needed. But are these persons being used? A listing of these individuals would prove most valuable when forensic investigations need to be undertaken.

Dental schools provide little instruction, if any, so that the newer generation of dentists acquire only a minimum of instruction about the subject. As stated, dentists have been called in on investigations, at the disaster scene, when other means of identification proved inadequate; in spite of no training in forensic methods and with little knowledge of acceptable procedures they have rendered a positive service.

What is being done to advance interest in this field among dentists? The four postgraduate courses in forensic dentistry at this Institute devoted a large portion of the schedule to identification methods, and must have produced a nucleus of individuals that are forensic-minded and trained. Without leadership, beyond this individual attendance at a course, little will be accomplished for the advancement of forensic odontology unless some group assumes that leadership. Identification of bodies belongs in the realm of the autopsy surgeon, so the logical group would be one whose interest is in pathology—in this case dental and oral pathology. It is hoped that our pathologists will recognize this responsibility.

This is also a responsibility of the dental profession. Where dental identification is required, the profession should be able to designate and provide a dentist qualified to serve as an expert in forensic odontology. So long as we maintain the status quo, the old system of picking up any dentist for the medical investigating team will prevail. Something needs to be done about education and training. I suggest that all of you present give this serious consideration with the objective of a positive and unified system of cooperation. The Scandinavian countries have done it, and there is no reason why it cannot be done here. It will require effort to create the interest and

expand the knowledge. Those of you here should assume the leadership to accomplish it.

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"DOCTORS"

Persons with the degree of M.D. should refer to themselves as "physicians" rather than as "doctors" because of the growing number of professions whose members call themselves "doctors," said Robert R. Murphy, general counsel of the State Medical Society of Wisconsin. He pointed out that "There is a growing procession of callings professed by men who have or claim the right to call themselves 'doctors.' Sometimes this is with the benefit of legislation and again it is not." Attorney Murphy's remarks were delivered at the AMA's 1967 National Medicolegal Symposium held recently in Miami Beach, Fla.—AMAgrams, J.A.M.A. May 15, 1967.

Evaluation of Patient Behavior

PAUL E. JAFFE, D.M.D. and BERNARD KUTNER, Ph.D.

THERE is a field of human relations in dentistry about which dentists are largely unaware and in which they are, as yet, formally unschooled. At the same time, there is considerable interest in social sciences concerned with placing human relations in the profession on an objective and scientific footing. Dentists should be made aware of both the thinking and research work that has gone into these endeavors.

It is not uncommon to hear references made at dental meetings to "motivation," "patient relationships," and the power or emotional appeal of the dentist. We even hear of tests that have been set up to determine patient attitudes, their "dental I.Q." and related matters. Dentists are largely unprepared to deal with such undisciplined approaches to complex matters and lack the necessary background in sociology, psychology, and related fields to evaluate their usefulness.

Within the dental profession an attempt is being made to modernize thinking as it relates to the doctor-patient relationship, and the more thorough evaluation of patient attitudes and interests in dentistry. Depending upon the practitioner concerned, the patient-doctor relationship is being scrutinized, primarily by behavioral scientists who have a professional interest in studying the nature of human interaction. Social scientists are attempting to establish a foundation of knowledge from which an intelligent base for the study of dental patient behavior may be launched. They realize that a thorough understanding of the structure of the dental profession is a basic consideration. The content of such behavioral research is under constant revaluation by these men and their colleagues on the graduate faculties of many universities throughout the country.

Certain individuals with inadequate training in the social and behavioral sciences have found the area of "human relations," a fertile ground for peddling their doctrines. Unscrupulous commercially-

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minded opportunists are attempting to sell a cheap and unreliable form of psychological knowledge to some dentists who are unable to discriminate the legitimate from the illegitimate. The background of these "educators," by and large, has been that of the salesman, the sales executive, and the advertising agency. They have proceeded in a tangential and superficial manner to sell many practitioners and study groups on the value of their information on patient behavior. They have managed to mesmerize certain sections of the dental profession into believing that their particular kettle of tricks can be used to influence patient decisions, or for that matter, the direction and purchase of dental care.

Dentistry by its very nature has established a variety of methods and techniques. It is only natural that practitioners would hope to set up a methodology to evaluate patients as well. One technique employed by some dentists who have been exposed to the lectures of the fraudulent hucksters is to evaluate patients as to basic drives. Others use a temperament check list, or even categorize patients as "introvert, extrovert, and ambivert." Some practitioners even attempt to pretest their office personnel using certain psychological and aptitude "tests" originally designed for business and industry.

The basic inadequacy of such an approach lies not only in the tests themselves but in the lack of training of the practitioner in understanding the original purpose and design of such tests. There is greater significance in the fact that the dental practitioner is typically unable to interpret the findings of these tests. The critical point is this: there are scientifically established personality tests and other types of psychological instruments that are commonly used by *trained* psychologists both in the health professions and in industry. The employment of psychological instruments through trained and responsible people (for example, certified psychologists who must be licensed in certain states) is not the same thing as the use of some sort of quickie test without ample safeguards on administration and interpretation.

The study of human behavior is a vast area, which cannot provide one with positive and definite answers to the complex personality of the individual.

The dentist cannot place the same accent on patient behavior and personality as he does on the construction of a fixed bridge. No matter how anxious one is to relate patient behavior to a chart and to then apply such methodology to a coding system, it cannot be

done! Social and behavioral scientists are learning more about human nature and the doctor-patient relationships. A more reasonable position would be that the schools of dentistry should include appropriate courses in behavioral science for dental students and that the scientific knowledge about dentistry and the practitioner-patient relationship be sought from existing research and writings.*

A profession such as dentistry in which the human element of interaction is a factor calls for an understanding of personality and behavior. While language provides the matrix for the interchange of thought and ideas in communication with our patients, there is untold significance in the art of listening. It is necessary that we bear in mind that all which the patient may be able to tell us about himself will not necessarily coincide with what for conscious or unconscious reasons he chooses to say. His spoken word will be tempered by much which for similar reasons he wishes to keep away from the hearing of others. The question of measuring patients' attitudes and of enhancing the doctor-patient relationship is something that requires both serious consideration and training.

We must recognize that we can study human behavior, and even be aware of certain trends, but we cannot predict individual human conduct with accuracy. Our approach to human behavior and its study must be more than well merchandised bits of inspirational fudge that are prepared for the naive, the gullible, and the unthinking dentist. We must approach the study of patient behavior in an intelligent fashion. To think that dentists may accept a study of patient attitudes in an unscientific form is evidence of a need for systematic study in both dental school and in continuing education. There are in reality no magical keys to personal leadership and successful practice. These qualities lie within the moral and ethical fibre of the dentist himself and in the time he is willing to take to understand and communicate with his patients.

By being prepared to deal with the ill-informed and the unscrupulous, he will, at the same time, be better able to utilize the results of many years of social scientific research.

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* See, for example: "The Doctor and His Patient," by Samuel W. Bloom (Russell Sage Foundation, New York, 1963); "Patient's Views of Medical Practice," by Eliot Freidson (Russell Sage Foundation, New York, 1961); "Social Science in Medicine," by Leo W. Simmons and Harold G. Wolff (Russell Sage Foundation, New York, 1954); and "Patients, Physicians and Illness," by E. Gartly Jaco (The Free Press, Glencoe, Illinois, 1958).

Comment on the Dental Scene

"Customizing the Language"

DAVID A. BENSINGER, D.D.S.

LISTENING to the lectures in a recent dental meeting it readily became apparent that the language of dentistry is a constantly changing affair. On occasion the language seems to change so rapidly that keeping abreast of actual semantic meanings is near impossible.

Lecturers and authors tend to invent new words to fill a particular specialized vocabulary need. The new words may succeed in their usage, particularly if they fulfill a valid need; in such a situation new words may eventually appear in the dictionaries.

Nonetheless, such word invention may tend to destroy the ability to successfully communicate within the profession, or within any otherwise literate society. When word meaning is not readily implied, and when dictionary reference is not yet available, the value of an otherwise well written article may be forever lost.

The phrase "bicuspidizing a molar" can be heard in lectures, and its meaning may be well established among certain groups of men in the profession. However as non-standard terminology appearing in texts and periodicals such word usage may have inadequate semantic meaning. Insufficient precise in-depth explanation will stifle the continued self-education of the majority of the profession.

The intended purpose of published material should be to increase knowledgability of a given subject; occasionally a reader may suspect intrigue and mystery to be the objective.

As greater knowledge is developed in the sciences of dentistry new words will certainly be required. When an honest need is presented no one can object to its proper fulfillment. Indiscriminate creation of the need should be avoided.

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"Bicuspidizing a molar" could easily refer to an alteration of function, or anatomy, or position of a tooth. Whatever the intended meaning the inventors of such words and phrases should be given a degree of praise for their genius. Let's look forward to new and better possibilities. How about incisorizing a molar? Or still better, think how useful it would be to molarize an incisor?

How Much Is It Worth??

MARVIN SNIDERMAN, D.D.S.

The agenda of the Middle Atlantic Dental Officers Conference earlier this year in Wilmington, Delaware, contained an item that does not often come to the attention of the average dentist, but it is one that has grown to considerable heights in recent years: the explosive and exorbitant escalation of the fees clinicians and lecturers are asking of dental societies. A recent adventure of our program committee brought this home to us.

The following are several statements from a letter written to our program chairman, Dr. Nicotra, recently:

"I find that it is absolutely impossible to fly back to Pittsburgh, taking a Thursday and Friday out of my office and lecturing for a day and a half for $200. It is not that I wouldn't do this for Dentistry, but for many years, I have been giving as much back to Dentistry, that I feel I can possibly do.

"My normal stipend for a full day's lecture is $1,000 plus 1st Class airline transportation and all expenses while there.

"I regret having to cancel my reservation at this time, but for all practical and economical purposes, it just isn't possible.

"I am maintaining a full and busy dental practice as well as trying to do as much lecturing as I possibly can. You being a practitioner, I am sure you realize the sacrifices one must take with an office with five auxiliary personnel, etc., to leave his office for two days for $200.

"If your program committee decides that they can meet my honorarium I should only be too happy to continue my plans with you."

Undeniably, prices are going up everywhere and the stipend a talented man is paid for exerting himself on our behalf and denying

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himself profitable office working time must be negotiated and adjusted upward within reasonable bounds.

Yet this stipend will always remain an honorarium, a token payment in appreciation, not intended as wages or fees. Thereby is conveyed the implied compliment that the service received is far more valuable than the payment tendered, and that our appreciation, gratitude and respect for our benefactor are his due in lieu of the deficit.

The American College of Dentists in its "Guide to Conduct" has rather explicit recommendations regarding the payment of fees for speaking:

> *Sharing of Knowledge and Experience.* A Fellow of the College should evidence a readiness at all times to give freely of his time and talents and to share with his dental colleagues, privately and publicly, the benefits of any special knowledge, skills, and experiences that may be useful to them.
>
> Accordingly, Fellows are expected to allocate a reasonable amount of their time to the advancement of the profession. This should be done under acceptable auspices, namely, recognized dental societies, approved dental schools, or other non-profit professional or educational agencies. Personal aggrandizement should be avoided.
>
> As appointed or selected teachers, lecturers or clinicians, Fellows are entitled to fair remuneration for their services, if funds are available. The amount of such remuneration should be determined by the organization or auspices under which courses are given, not by the clinician or lecturer.

This concept of professional etiquette is somewhat shaken when a clinician rejects a society's offer of "x" dollars as inadequate and unrealistic, but expresses an interest in the invitation if the fee is "5x" dollars.

How much better if he would politely decline on the plea of personal business, which no one questions and everyone respects. No legislation is required and no resolution need be drafted. The laws of economics will dictate the number of days per year a dentist *can* give to his profession and his own feelings toward his profession and his colleagues will set the number of days he *wishes* to devote in this manner.

The dollar sign and high professional ideals are often difficult to mix, but it can be done with time and thought and understanding.

Sixth Annual—1968 Institute for Advanced Education In Dental Research

APRIL 15-16, 1968

EPIDEMIOLOGY AND BIOMETRY

THE Institute for Advanced Education in Dental Research was conceived by the Committee on Research of the American College of Dentists. This group recognized that essentially all training efforts are directed toward either development of new investigators for careers in research, or specialized advanced training of individuals. They felt that there would be real value in a program that afforded experienced workers the opportunity to gather together under the guidance of a group of recognized senior scientists, acting as mentors, and discuss their research interests, problems, and goals.

The basic philosophy underlying creation of the Institute was that by a sufficiently prolonged association of this type the trainees, all with related but preferably non-identical interests, would gain a broader and deeper understanding of dentistry's problems and fruitful ways to attack them. From the personal standpoint, consideration of the specific details of each participant's own research activity would contribute to an insight into its significance and possible future direction, as well as into new and advanced experimental approaches that might be applied.

The Institute is entering its sixth year under support by a training grant from the National Institute of Dental Research. Determination of annual program content, invitation of senior mentors, and selection of trainees have become the duties of a continuing Subcommittee on Research of the American College of Dentists.

The programs are kept entirely flexible and mentors are invited on the basis of stature and competence in the field, and community of interest with the participants. They are drawn from the ranks of general science as well as from dental research centers. In the selec-

tion of trainees, consideration is given to record of accomplishment and promise for the future, ability to add to the dialogue of the curriculum, as well as to the achievement of a balance between the various disciplines pertinent to the study areas. Ordinarily the basic group is comprised of ten to twelve trainees and four mentors, with added senior participants as special needs arise.

The Institute is held at locations where the atmosphere is conducive to serious discussion, informality, and minimal interruption. Sessions consist of a two week period in Spring, followed by a concluding week in Autumn. This arrangement has not only made scheduling more feasible, but the time for thought and trial between sessions has also contributed greatly to the effectiveness of the concluding week's discussion.

The topic for the 1968 Institute is *Epidemiology and Biometry.* This seminar will be an exposition in depth of the design, conduct, and analysis of oral disease in human subjects. Attention will be given to field (observational) studies, and to the clinical trial. Emphasis will be directed toward dental caries and periodontal diseases, with some consideration for other oral conditions. Areas where new knowledge is needed will be explored. The principal mentors will be Albert L. Russell, University of Michigan School of Public Health, and Robert M. Grainger, Department of Epidemiology, University of Toronto. The first session (two weeks) will be held April 15-26, 1968, at the Carrousel Inn, Cincinnati, Ohio. The dates and place of the second session (one week) will be announced; this is usually held in Chicago in October.

Research workers interested in attending should send a letter of application before November 1, 1967, to Dr. T. F. McBride, Assistant Secretary, American College of Dentists, 4236 Lindell Blvd., St. Louis, Mo. 63108. Material submitted should include a curriculum vitae, list of pertinent publications, and a detailed account of previous and present activities in the subject field; also a statement of the type of discussion topics that would be most useful to the applicant's interests.

The Institute reimburses trainees for their travel expenses and pays a stipend based on the cost of living.

Looks at Books

CATALOGUE OF THE MENZIES CAMPBELL COLLECTION. By J. Menzies Campbell, D.D.S. (Toronto, 1912). 137 pp. Royal College of Surgeons: Edinburgh—18 Nicolson Street. 1966. $3.00.

J. Menzies Campbell, of Glasgow, Scotland, has long been known as an outstanding dental historian. The many papers on various facets of the history of the profession that have appeared in the dental literature under his name attest to his lifelong and devoted interest.

In addition, he has been a collector of historical material pertaining to dentistry. This avocation, it is more than a hobby, resulted in his acquiring a sizable collection of dental instruments, appliances, pictures, ornaments, tokens and medals, and even dentures that date back to the late eighteenth century. Three years ago Dr. Campbell, following a request of the Royal College of Surgeons of Edinburgh, gave this valuable Collection (it deserves a capital letter) to the Royal College for permanent care and exhibition.

It was fortunate that Dr. Campbell was able to prepare this comprehensive "Catalogue" himself. This is not merely a numbered listing and inventory of the items in the Collection, but is an informative historical work. Each section of the "Catalogue"—from pelicans and keys to apple-scoops and tongue-scrapers—is preceded by a descriptive account of the items replete with numerous historical references. There are no illustrations of the Collection material, but the descriptive passages permit one actually to "see" the item.

All in all, this "Catalogue of the Menzies Campbell Collection" affords the reader a pleasant and profitable, as well as an entertaining and enlightening evening.

It should not be amiss to mention here that Dr. Campbell is a Fellow of the American College of Dentists and last year gave the College a rare copy of the "Dentists Register—1879." This is a sound, clean copy, in the original binding, of the *first* register of dentists in the United Kingdom. It occupies a prominent position in the ACD Library in the Central Office.—*T.McB.*

MODERN PRACTICE IN DENTAL CERAMICS. By John F. Johnston, D.D.S., M.S.D., George Mumford, D.D.S., M.D.S., D.D.Sc., and Roland W. Dykema, D.D.S., M.S.D. 312 pp. Philadelphia: W. B. Saunders Co. 1967. $13.00.

In a survey of ceramics in the dental curriculum by Pruitt in 1965 (*Journal of Dental Education,* June 1966) it was stated that most schools integrated ceramics into their curricula. However, the clinical requirements varied from zero to eight, with the most common requirement being one restoration. This does not indicate too great an emphasis in the ceramic area.

If this situation has been caused by the lack of a good text on dental ceramics, the remedy is at hand. Now, a good text is available. This book, by the Indiana professors, published this year, should indeed "strengthen an already quickened momentum in this rewarding area of restorative dentistry."

In addition to its use as a textbook for undergraduates, many of the chapters present data of value to practitioner and technician for guidance and reference. Nor are principles and procedures for the beginning ceramist neglected.

All types of porcelain restorations are considered: jacket crown, inlay, and veneer. Modification of facings and pontics, and staining and glazing are included. Methods for building and firing the jacket crown are especially well described. All of the techniques are explained amply, in detail, and understandingly. The illustrations indicate careful selection to augment the text description and explanations. It is gratifying to see a chapter devoted to temporary coverage. The recency of the references at the end of chapters point to the up-to-dateness of the material presented.

The wide use of acrylic resin in the past score of years relegated porcelain manipulation to the lost arts. The authors, with this book, have done yeoman service to bring back and create an appreciation for this ideal, biologically acceptable, and esthetic restoration. Certainly the porcelain pioneers—Land, Spalding, LeGro, and Felcher—are applauding the appearance of this book.—*T.McB.*

A LEXICON OF ENGLISH DENTAL TERMS. Compiled by the Federation Dentaire Internationale. 424 pp. The Hague, Holland: A. Sijthoff. 1966. $10.00.

This glossary of dental words is in five languages: English, Spanish, German, French, and Italian. The term is given in English with the equivalent in the four other languages—from abrasion to zygote; tooth nomenclature is included. The work has been designed for research workers, practitioners, and students who desire or find it necessary to read dental literature in languages other than their mother tongues. It should also prove of value to interpreters at international dental meetings. Schools and libraries will find it a welcome and useful addition to their stacks.

The dictionary is dedicated to the advancement of international understanding among all workers in the field of health, to the improvement of communications in dental science and practice, and to the furtherance of the endeavors of the Federation Dentaire Internationale to improve dental and total health throughout the world.

Copies may be obtained from Dr. G. H. Leatherman, Secretary General, FDI, 64 Wimpole Street, London W.1, United Kingdom. The price is $10.00. —*T.McB.*

Vital and Health Statistics

A Health Examination Survey was conducted by the Public Health Service from October 1959 through December 1962 to a probability sample of the country's civilian, non-institutionalized population aged 18-79 years. Approximately 6,700 persons representing a total population of some 111 million adults were examined.

The National Center for Health Statistics are publishing the findings and estimates. Last year there appeared "Oral Hygiene in Adults," and this year "Decayed, Missing, and Filled Teeth in Adults." Both reports were written by James E. Kelly, D.D.S., Lawrence E. Van Kirk, Jr., D.D.S., and Caroline C. Garst of the Division of Health Examination Statistics.

The following comment is excerpted from abstracts prepared by the National Center for Health Statistics.

ORAL HYGIENE IN ADULTS, UNITED STATES, 1960-1962. PHS publication No. 1000, Series 11, No. 16. June 1966. Available from the Superintendent of Documents, U. S.

Government Printing Office, Washington, D. C. 20402 for 30 cents.

Oral hygiene was seriously and probably habitually neglected by an estimated 11.5 million American adults. The degree of oral cleanliness was determined by the Simplified Oral Hygiene Index.

Generally, women exhibited healthier levels of oral hygiene than did men. In both men and women, however, oral hygiene became progressively worse with increasing age because of the steady accumulation of calculus. The amount of debris showed no appreciable increase with age. At all age levels, women had both less debris and less calculus. (Debris was considered as loose foreign material, and calculus as hardened foreign material.)

The degree of oral cleanliness was considered on the basis of demographic variables such as income, education, place of residence, and race. Oral hygiene was found to improve with increasing education and with increasing income. Except that white rural residents had poorer levels of oral hygiene than white urban residents, estimates by place of residence did not vary significantly.

Substantial differences in oral hygiene were observed between white and Negro adults. The mean oral hygiene score was 2.2 for Negro men and women, compared with 1.5 for whites.

The variance in oral hygiene by race was accounted for in large part by differences in income and education. When either income or education for the white population was statistically adjusted for comparability with that of the Negro population, differences in oral hygiene became less apparent. The difference by race remained greater between men, however, than between women.

There was a high correlation between periodontal disease and oral hygiene. In the same population, periodontal disease increased or decreased in prevalence and severity according to the degree of oral cleanliness. Among persons with the same level of oral hygiene, there was little variation in the amount of periodontal disease by either income or education. Age, however, was always an important factor in the prevalence and severity of periodontal disease.

Periodontal disease is more prevalent in men than in women and in Negroes than in whites. As with oral hygiene, periodontal disease decreased as education and family income increased.

DECAYED, MISSING, AND FILLED TEETH IN ADULTS, 1960-1962. PHS publication No. 1000, Series 11, No. 23. Available from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402 for 35 cents.

The estimates in this report describe the dental condition of only those men and women—approximately 91 million in all—who still had natural teeth.

The widespread prevalence of dental disease and its effect on the dental health of the adult population are strongly reflected in the resulting estimates. Adults of all ages and races averaged 17.9 decayed, missing, and filled (DMF) teeth per person: 1.4 decayed, 9.4 missing, and 7.0 filled. It was the exceptional person—about 1 in 160—who possessed all of his natural teeth, none of which was either decayed or filled. Counts of DMF teeth, based in this survey on 32 teeth, represent the total number of permanent teeth any adult at any age has that are decayed, filled, and either missing or indicated for extraction.

Trends by both age and sex were remarkably consistent. In general,

DMF teeth accumulated rapidly with advancing age, reflecting the steadily increasing loss of teeth which accompanies aging. At all age levels, women had higher counts of DMF teeth than did men, which suggests that women are slightly more prone to dental disease than men. White adults had substantially more DMF teeth than did Negro men and women: 18.7 and 12.2, respectively. The DMF counts were consistently higher for women than for men of the same race.

The number of DMF teeth was significantly related to family income and education. As family income and education increased, the number of DMF teeth increased for both men and women. Variations in income and education fail to explain the wide difference in DMF teeth that prevailed by race.

Because younger adults lose relatively few teeth from any cause other than decay, DMF teeth accurately measure the number of their teeth that have been attacked by decay at least once. Thus, differences between mean DMF counts of groups of young people whose age is the same reflect relative variations in the rate at which their teeth have been attacked by decay.

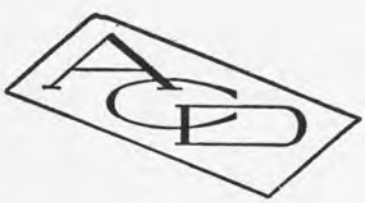
Trends in DMF teeth in young adults 18-34 years of age were examined separately and compared with those for the adult population as a whole. The demographic variables which were significantly associated with DMF teeth in the entire adult population prevailed to a striking degree in the young adult group. Thus, it appears that women are slightly more susceptible to dental decay than men, persons with higher income and education more prone than those with lower income and less schooling, and white adults substantially more susceptible than Negro adults.

ACCEPTED DENTAL REMEDIES—1967.

This ADA "handbook of dental therapeutics" (reviewed here in the January 1967 JOURNAL) has become a biennial publication. The American Dental Association has announced that the next edition of ADR will be the 1969-1970 edition, and will be available in late 1968.

Last month, ADR—1967 was given to all senior dental students in the 49 dental schools in the United States. This was a gift from the ADA and the Warner-Lambert Pharmaceutical Company.

Copies may be purchased from the Order Department, ADA, 211 East Chicago Avenue, Chicago, Ill. 60611. The cost is $3.00.



The Objectives of the American College of Dentists

The American College of Dentists, in order to promote the highest ideals in dental 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 development and use of measures for the control and prevention of oral disorders;

(b) To urge broad preparation for such a career at all educational levels;

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

(d) To encourage, stimulate, and promote research;

(e) To encourage qualified persons to consider a career in dentistry so that the public may be assured of the availability of dental health services now and in the future;

(f) To improve the public understanding and appreciation of oral health service and its importance to the optimum health of the patient through sound public dental health education;

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

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

(i) To urge upon the professional man the recognition of his responsibilities in the community as a citizen as well as a contributor in the field of health service;

(j) 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.

This is from the Preamble to the Constitution and Bylaws of the American College of Dentists.


AMERICAN · COLLEGE · OF · DENTISTS
SCIENTIAE · BENTIUM · CURANDORUM · HUMANITATIS · CAUSA · DEDICATUM · PROGRESSIONI
FOUNDED 1920