

INTRODUCTION

A. DENTISTRY A HIGHLY MECHANICAL DIVISION OF THE HEALING ART

FROM the earliest periods of human history, the teeth have been subject to irregularity in arrangement, to decay and disintegration, to loosening from their attachments in the jaws, and to partial or complete removal by accident or intent. Among the ancients, desire to preserve teeth, to retain loose teeth, and to disguise dental disfigurement, gave birth to the art of dentistry, which has been traditionally an agency to perfect the mechanism of mastication, induce oral comfort, correct maxillary or palatal deformities, maintain normal vocal enunciation, and enhance facial comeliness. After centuries of cumulative refinement of its methods, dentistry has become, in the main, the art of realigning, repairing, rebuilding, and removing teeth; remedying diseased conditions within teeth and in tissues immediately adjacent to them; and replacing, functionally and esthetically with artificial substitutes, the teeth or parts of teeth that have been lost or removed. The last of these phases long seemed to be the most important utility of the practice of dentistry, which, by reason of its outstanding reconstructive character and its minor evidences of curative quality, appeared to be a specialty of applied mechanics with only an incidental relation to the art of healing. In recent years, dentistry has also been aiming to repel dental and oral diseases, chiefly by improved applications of the mechanical resources of oral hygiene, and by encouraging reliance upon diets that favor normal growth and maintenance of the whole body.

B. DENTISTRY AN INDEPENDENT AND CLOSELY ORGANIZED PROFESSION

Dentistry began to attain importance in 1839 and 1840, when dentists in the United States established the first journal of dentistry, the first national society of dentists, and the first dental school. For nearly three decades thereafter the organization of dentistry in America remained superficial, and there were practically no legal restrictions of its practice, which was regarded generally as a mechanical trade that any one might undertake who was disposed to do so. In 1868, the ten existing

dental schools graduated only about ninety dentists, most of those who then began the practice of dentistry having preferred to learn the art as apprentices in the offices of established dentists. In 1868, in response to cumulative demands for greater responsibility and efficiency in dental service, the legislatures of three states enacted laws that defined dentistry and specified educational requirements for a license to engage in its practice. During the period from 1872 to 1899, this example was followed by the other states individually, and since 1900 such a law has been in force in every state in the Union.

In all of the states of this country and in the provinces of Canada, dentistry and medicine are by law regulated as independent though related professions. Admission to their practice is based on diverse educational requirements, which are exacted for each profession by state or provincial boards of examiners, or equivalent officers representing the people. The courts have interpreted these laws to mean that dentistry and medicine are separate and distinct in fact and in law, and that a dentist is not a physician and a physician is not a dentist.

Dentistry is now a highly organized profession, with about 65,000 practitioners in the United States and 3800 in Canada. In each country there is a national association of dentists; and practically every state or province contains a state or provincial society and many district and local organizations of dental practitioners. The state boards of dental examiners in this country have maintained a national association since 1883. There are forty-four dental schools in the United States and five in Canada, all but eight of which are parts of universities. Representatives of the dental schools in the United States and Canada have supported various general associations of the schools since 1884, and of the teachers since 1893, but in 1923 united these bodies in the American Association of Dental Schools. The Dental Educational Council of America, representing the national organizations of state examiners, of schools and teachers, and of practitioners, performs for dentistry, in the United States, educational functions that are similar to those of the Council on Medical Education and Hospitals of the American Medical Association. The American College of Dentists is analogous to the American College of Surgeons. Dental practitioners of all nations are united in the *Fédération Dentaire Internationale*, and the Seventh International Dental

Congress will be held under its auspices in Philadelphia in August, 1926. The International Association for Dental Research consists of a federation of five research societies in this country and one in Canada. Many of the dental organizations issue periodicals, and a relatively large number of commercial dental journals are published monthly. The dental associations have been conducted in complete independence of the medical bodies. The Section on Stomatology of the American Medical Association, established in 1881 to make the relationship between medicine and dentistry more intimate, was disbanded in May, 1925, chiefly because of lack of medical interest in dentistry. The American Stomatological Association, founded in October, 1924, aims to convert dentistry into a specialty of the practice of conventional medicine, but does not appear to be receiving any marked encouragement from either dentistry or medicine. Owing to failure of both physicians and dentists to recognize the fact that the primary objectives of dentistry and of medicine are identical—to keep people well—there has been very little practical coöperation between bodies representing the two professions.

C. DENTISTRY NOT AN ACCREDITED SPECIALTY OF THE PRACTICE OF MEDICINE

The abnormalities and diseases of such parts of the body as the ear, eye, nose, and throat are everywhere included in the practice of conventional medicine, and are the primary concern of certain of its important specialties. But in Canada and in the United States, as in other countries, the disorders of the teeth have been allotted to dentistry, which has been organized and is now legally defined and regulated as a division of the healing art that is intrinsically different from that of a specialty of medicine. The teeth and their closely adjacent tissues are the only parts of the body that have been thus singled out as a special domain of remedial treatment that may not be formally practised by a physician without a special license.

This exceptional position of dentistry, compared with any of the accredited specialties of the practice of medicine, arose from early recognition of the unusually high degree of digital skill that was required in nearly every act in the realignment or replacement of teeth, and for

their reparative, remedial, or reconstructive treatment. The attainment of this unusual status has been due in large measure, also, to the abiding influence of ancient and mistaken opinions among physicians that, as a rule, dental maladies were wholly local, relatively unimportant in their influence on the general health, and in need of medical attention only when adjacent parts had been involved or deranged so grossly as to make medical or surgical treatment imperative. These erroneous beliefs, which were promoted originally by physicians and which persist among them even now, have been fostered, also, by general misunderstanding of the significance of early medical observations that teeth were almost wholly devoid of the capacity for self-repair; that, usually, dental disorders were not curable with drugs but could be remedied by mechanical means alone; that all of the teeth, whether healthy or diseased, could be broken off or extracted without apparent harmful influence on the jaws or on the welfare of the body as a whole; and that substitutes for the crowns of any number of teeth could be adjusted in the mouth for effectual maintenance of the dental functions. The concurrence of these conditions of incapacity for self-repair, incurability by medicinal treatment, ready recovery from the effects of total loss, and completeness of the functional restoration attainable by artificial replacement, which do not apply collectively to any other part of the body that is supplied with blood and nerves, long seemed an encouragement of medical indifference to the teeth and to dentistry.

As a result of these unfounded assumptions and of such misapprehensions of the import of dental disorders, by physicians for centuries, medicine gave little attention to the health of the teeth. Although the advance of civilization has been accompanied by accentuation of dental abnormalities, medicine persistently ignored the great desirability of careful observation in this field; and, sharing the popular belief that decay of teeth was unpreventable and loss of teeth unavoidable, physicians helped to bring about universal resignation to the supposedly inevitable incidence of dental imperfection and distress. Until recently, medicine viewed this situation with about as much concern as that excited by loss of hair from the scalp, and did little more to understand or to control the influences responsible for the one than for the other. Under these conditions of unconcern and neglect in the practice of

medicine, which reflected the crudity, ignorance, and superstition of its development, the work of repairing or removing teeth, or of preparing and fitting useful substitutes for lost teeth, was considered to be as unimportant medically as that of a barber. A tooth was pulled out or broken off for the relief of toothache, and strength was the only operative requirement. Any one whose special mechanical proclivities induced him to undertake the task might make "false" teeth and fit them in his own way, under any mutually satisfactory conditions, into the mouths of all to whom such substitutes could be sold. As a rule, physicians refrained from attempting to render reparative service of this kind. In the United States, goldsmiths, jewelers, ivory turners, umbrella makers, blacksmiths, mechanics, wig makers, tinkers, engravers, barbers, and itinerant jacks-of-all-trades became the most numerous practitioners of dentistry, which for many years remained a simple trade and a mechanical subsidiary to medicine. It was not until the last century that leading practitioners, men of high ethical standards and enlightened endeavor, raised it to the status of a profession.

After ignorance, commercialism, and charlatanry had lowered dentistry so far in public esteem that earnest practitioners in America were finally impelled to act, a few doctors of medicine, who had been concentrating their attention on dental disorders and who had a deeper appreciation than their medical confreres of the relation of the condition of the teeth and mouth to human welfare, coöperated with a number of progressive dentists in efforts to improve the quality of dentistry and to elevate it in public respect by associating it intimately with medicine. They endeavored unsuccessfully to establish instruction in dentistry in schools of medicine, the most important of their proposals to this end having been rejected, by the medical faculty to which it was presented, with the decisive comment that dentistry was not important enough to be taught in a medical school. This historic rebuff, administered in 1839 to earnest physicians and dentists who sought, in effect, to make dentistry a specialty of medicine, did not dishearten them, but diverted their purpose and threw them upon their own resources. With a vision of greater serviceability and higher respectability for dental practice, they determined that, if dentistry could not be taught in medical schools, it should be given a suitable educational foundation in independent colleges.

Accordingly, in 1840 in Baltimore, they established the original dental school, which began promptly to give instruction leading to the degree of Doctor of Dental Surgery (D.D.S.), and graduated two students in 1841. Since 1840 formal instruction in dentistry has been conducted in this country independently of medical education without objection from medicine and with little complaint from dentistry.

The desirability of teaching the medical sciences to students of dentistry was appreciated by the pioneers in dental education, and such instruction has been given in all dental schools; but dentistry's realization of its need for the medical sciences has never been keen enough to give to that instruction the quality it bears in medical education, or to impart to dentistry the character of a specialty of the practice of medicine. Growing need for laboratory facilities to improve the instruction of dental students in the medical sciences has induced administrative officers, in most of the universities containing both medical and dental schools, to bring about affiliations between these schools in order to prevent avoidable waste from unnecessary duplication of teaching resources. Yet such affiliations, which commonly take the form of instruction of dental students in laboratories in the medical buildings, have not been expressive of any desire or tendency anywhere to make dentistry a specialty of the practice of medicine. On the contrary, as a result of traditional antagonism, these adjustments having been effected in most instances in the face of spirited resistance from the medical or the dental faculties concerned, continue to be more or less unwelcome to one or both groups of teachers. As an outcome of this lack of understanding and accord, medical faculties are often frankly indifferent to the conditions or the quality of the instruction given in their laboratories to dental students. In turn, dental faculties, which usually have little more than a perfunctory interest in instruction in the medical sciences, commonly make the best of such awkward situations as guests of medical faculties, by submitting to what they cannot avoid. The burden of the public disservice that arises from this state of affairs clearly rests upon the shoulders of the medical faculties.

Another indication of the uncompromising independence of dentistry and medicine is the fact that, although the medical schools in this country and in Canada require prospective general practitioners to take formal

courses in the common features of such specialties of medical practice as oto-laryngology, rhinology, ophthalmology, and dermatology, with few exceptions they ignore oral hygiene and clinical dentistry, as though all phases of stomatology were unimportant in the careful practice of medicine. Most of the medical schools, inattentive to the relation of dental disorders to the inauguration and progress of various diseases in other parts of the body, fail to emphasize even the general association between dental maladies and those of the closely related medical specialties; make no provision for effective instruction in surgery on the borderline between dentistry and medicine; exclude clinical dentistry from their dispensaries and hospitals; and do not recognize dental service in its true relation to human welfare. Even research in dental fields is regarded, in important schools of medicine, as something intrinsically inferior. These deplorable conditions occur in universities where dental and medical schools are closely associated. And yet, despite the prevailing medical lack of information regarding clinical dentistry, many physicians, often against the protests of the dentists of the patients concerned, peremptorily order extraction of particular teeth, or sometimes of all remaining teeth, on the assumption apparently that a dentist's judgment cannot be right when it conflicts with a physician's guess. It is also true that the biological ignorance of many dentists, owing to deficient education in the medical sciences and in the requirements of oral medicine, often accounts for the disrespect of physicians for the views of dentists, and frequently makes dental contributions to consultations on the health of patients clearly unreliable.

D. DENTISTRY PROPERLY A FORM OF HEALTH SERVICE TO BE MADE EQUIVALENT TO AN ORAL SPECIALTY OF THE PRACTICE OF MEDICINE

Recent advances of science on the borderline between medicine and dentistry, particularly during the past fifteen years and especially from the contributions of bacteriology, pathology, and roentgenology, have shown that certain common and simple disorders of the teeth may involve prompt or insidious development of serious and possibly fatal ailments in other parts of the body. It has also been demonstrated that dental service, even when superficially perfect from purely mechanical

and esthetic points of view, may hide or evolve local pathological conditions favorable to the onset of infectious disease elsewhere in the system, if such practice disregards certain physiological requirements that neither dentistry nor medicine appreciated before the advent of recent discoveries. A discriminating attitude by individual physicians and dentists toward dental disorders, in the light of the most significant of these disclosures, has greatly extended the knowledge of specific relationships between oral and systemic pathological conditions, and has aroused belief in the existence of others awaiting detection. The reality of such significant correlations has emphasized the desirability of searching enquiry into their nature and into the extent of their occurrence, for the promotion of more accurate diagnosis and of more nearly perfect control, by both dentists and physicians, of numerous conditions of local or general disease.

The import for both dentistry and medicine of these significant findings, and of the further discoveries they presage, is obvious. They force the conclusion that dentistry is an important mode of health service, and that in general it is quite as significant for the maintenance of health as some of the accredited specialties of medical practice. Dentistry should no longer be ignored in medical schools, and its main health-service features should be given suitable attention in the training of general practitioners of medicine. Antagonism between medicine and dentistry cannot be explained on any basis of public interest or advantage and has no justification in any sentiments that are worthy of respect, for both professions are agencies for health service and cannot render it faithfully on any other conditions than those of earnest and effective coöperation. The practice of dentistry should be made either an accredited specialty of the practice of conventional medicine, or fully equal to such a specialty in grade of health service.

There are two sides to the question raised by the alternatives in the last preceding statement. Against the desirability of a conversion of the practice of dentistry into an accredited specialty of the practice of conventional medicine are a number of important prevailing conditions. Since the dental and the medical statutes in every state in this country, and in every province of Canada, oppose serious obstacles, the dental laws would have to be repealed. Neither organized medicine nor organized

dentistry desires such a conversion or would be content with it. If the dental schools were discontinued and dentistry taught only to medical students, the growing general demand for dental practitioners could not be met by the best medical schools unless they doubled the size of their student bodies and completely reorganized their work. Owing to the need for exceptional digital facility in the manifold intra-oral procedures of dental practice, and for esthetic felicity in their execution, the extensive technical training and the clinical instruction and practice peculiar to dentistry cannot be superimposed upon a conventional medical curriculum, leading to the degree of M.D., without making the period of dental training prohibitive in length for most prospective general practitioners. Besides, the medical curriculum is altogether too rigid, and the views of medical state boards and of medical teachers too unyielding, to permit substitution of training in the essential mechanical and esthetic aspects of dentistry for anything now contained in the required parts of the undergraduate medical curriculum, although the inclusion of oral subjects among the prospective elective courses to be open to candidates for the M.D. degree would facilitate special instruction in dentistry under the auspices of medicine. Unlike the practice of some specialties of medicine, such as that relating to disorders of the eye by diagnostic and directive medical specialists in ophthalmology (oculists), supplemented by modern optometrists as specialists in refraction and by opticians, the direct practice of health service applied to the teeth could not be divided properly among analogous stomatologists (dentists) and dental technicians. Such a distribution is unattainable because dentistry, in all of its terminal manifestations, must be practised in the mouth of the patient. The independent dental practitioner must comprehend the import of the variable biological conditions involved and also must possess the skill to perform the requisite intra-oral hand-work.

In support of these deductions it may be said that the details in an ophthalmologist's or an optometrist's prescription for a pair of glasses can be obtained and transmitted with exceptional precision. On such a prescription, glasses can be made by machinery, by an optician, with relatively perfect accuracy, under standard and stable conditions, and the glasses can be fitted by an optometrist (or optician) by very simple superficial adjustments that may have considerable range of mechanical

and biological variations without detriment to the patient's eyes. In dentistry, however, the equivalent of an ophthalmologist's (or an optometrist's) prescription cannot often be "obtained and transmitted with exceptional precision," nor filled accurately by machinery. The dental analogue of an optician's glasses must be fitted as a rule with microscopic exactness to prevent accession of microorganisms into the substance of the tooth or teeth affected, or to avoid unnatural or undesirable contacts with or stresses upon the teeth and tissues involved or against which the appliance impinges. Anything placed in or on the teeth, however well prepared it may be mechanically, rarely fits perfectly when first tested. It must be directly and often patiently adapted because of the individual peculiarities and the inherent difficulties of the attending variable oral and operative conditions. For this reason an appliance made by a dental technician from a dentist's models or specifications cannot be fitted by the technician or any one else as superficially as an optometrist (or optician) effectually adjusts a pair of glasses. On the contrary, it must usually be modified and tested in place in the mouth, until its adaptation is perfect, in accordance with all of the complex anatomical, physiological, and esthetic requirements and the extreme degree of mechanical accuracy involved. Finally, it must be skilfully put into place, and adjudged mechanically and biologically sound, and artistically satisfactory, by the "diagnostic and directive" practitioner of dentistry himself. A dental technician can prepare an appliance from a dentist's models or specifications and, under a dentist's supervision, can adaptively modify it. By attending to various extra-oral procedures, a cooperating technician can very effectually and desirably increase the amount of time available to a dentist for direct personal intra-oral service for his patients. But without the education in the medical sciences that the practice of dentistry requires, the most competent dental technician, who with such additional training would be a dentist and not a technician, could not be safely entrusted with the responsibility of fitting dental appliances. At present he could not do so without violating the statutes that regulate the practice of dentistry in this country and in Canada.

On the other side of the question raised above, it is plainly essential, from the point of view of public welfare, that, if dentistry cannot become an accredited specialty of the practice of conventional medicine,

it should be made the health-service equivalent of an oral specialty of medical practice in continued independence of medicine, so far as organization is concerned. For the laity, the quality of health service rather than the recognition of traditions or partisanship pertaining to such service is the primary desideratum, and medicine or dentistry by any other name would be a service just as grateful. If dentistry, having been developed and established as an independent form of organized public service, can rise promptly to its opportunity to become the full health-service equivalent of an oral specialty of the practice of medicine, and will do so in good order and without economic waste, as it appears to be inclined to do, then few would welcome the needless embarrassments and demoralizations that would follow an attempt to destroy progressive dentistry by forcibly including it in conventional medicine. If, however, dentistry as now organized should not wish to become or could not develop into the full health-service equivalent of an oral specialty of medicine, public interest would ultimately require the creation of an accredited specialty of medicine to render oral health-service in conformity with all of the evident necessities of such practice.

It should be clearly recognized that actualities rather than labels or symbols are the important factors in a consideration of this situation. It is helpful to recall that the term "medicine" is commonly used to signify not only the healing art in a general broad academic sense, but also to indicate particularly the practice of that part of the whole of the healing art that is usually taught to persons who receive the M.D. degree. "Healing art," as a term, does not logically include the application of means to prevent the occurrence of disease or to maintain health and normality, but medicine and dentistry are employing such agencies with increasing effectiveness in the most desirable extensions of their usefulness. "Practice of medicine" does not conventionally include such factors in health conservation as dentistry, public-health administration, nursing, and pharmacy. By regarding the practice of these and also of some minor types of activity for the maintenance of health or for the prevention or cure of disease, together with the practice of conventional medicine, as divisions or branches of *health service*, in the broadest and most comprehensive sense of the term, instead of divisions or branches of "medicine," one not only follows a logical and convenient course of

reasoning, but also ignores the insignia of useless professional partisanship, and obtains a clear suggestion of the proper position and due recognition of the practice of dentistry as it is, and also as it may be extended.

The outstanding deficiency of the science of dentistry has been its inability, hitherto, to discover methods for the general prevention of decay of teeth and of diseases of the closely adjacent tissues. Scientific establishment of adequate means to these fundamental ends would revolutionize the practice of dentistry by eliminating the chief present occasion for it. Although these disorders are among the most common of all bodily ailments, they have received little attention from medicine. Dentistry, deeply absorbed in oral mechanics, and not versed in oral medicine, has been baffled by them and, until recently, has been content to follow with repairs, reconstructions, and replacements. The primary causes of dental decay and of periodontal disease appear to be hidden in the biological secrets of the conditions or processes of dentition, nutrition, coördination, or oral variability. It seems probable that the causative influences, whether related to defective dental development, impaired nutrition, discoördinations, or particular conditions of dental environment, or to all of them, will not be discovered until the medical sciences are used effectively to this end. When dentistry becomes equivalent to an oral specialty of medicine, its vision and effort, combined with biological understanding and aided with methods of enquiry of corresponding adequacy, may be expected to bring these dental maladies into the realm of the completely preventable disorders, if that should not prove to be inherently unattainable. Comprehensive and penetrating research in these relationships is a basic need for the universal promotion of human welfare.

E. PRIMARY EDUCATIONAL NEEDS OF DENTISTRY AS AN EQUIVALENT OF AN ORAL SPECIALTY OF THE PRACTICE OF MEDICINE

Development of the art of dentistry into the equivalent of an oral specialty of the practice of medicine would require a new and more comprehensive definition of dentistry, a corresponding extension of the scope of dental health service, and commensurate improvement of den-

tal education. Expanded as it should be in biological scope and strengthened in all its health-service aspects, dentistry, then a learned profession, would be devoted, in broad terms,

- (a) to establishment of the principles, and
- (b) to application, in all forms and degrees, of scientific health-service relating directly to the teeth and to the closely adjacent oral tissues, and indirectly to the welfare of other parts of the body and of the whole system;
- (c) to discovery of the correlations between dental and oral conditions and systemic diseases, with special reference to observed effects of distant disorders on the teeth and closely adjacent oral tissues, and of dental and oral abnormalities on the health of the body as a whole;
- (d) to detection, and provisional diagnosis, of dental and oral symptoms that indicate the prevalence or imply the probable existence of ill-health elsewhere in the body; and
- (e) to suitable, supplemental, advisory health service, including consultation with the patient's physician, based on such observations (c) or diagnoses (d).

In this view of an enlarged dentistry, its practitioners would be trained to give the service not only of dental surgeons and dental engineers as at present, but of oral sanitarians and oral physicians as well. Instead of examining only the teeth and mouth of a patient, as is now usually the case in a restricted view of their responsibility, they would also suitably enquire into and keep careful records of the state of the patient's health, particularly as it affects or is modified by conditions of the teeth and mouth. Dentists would plan their procedures to meet not only the local indications but also the possible requirements of extra-oral relationships; would also recognize and note the significance of outstanding symptoms of systemic disease, and warn or advise the patient accordingly, or explain his need for a physician's attention; and could effectively discuss, with a physician, the oral conditions in their relation to a patient's general welfare. Prevention of disease at all ages would become an inherent and predominant motive. The frequency with which

dentists are, and will continue to be, consulted for oral health-service gives them special opportunity and occasion to note not only the occurrence of oral and systemic diseases, but also the existence of correlations between them, and to help or guide patients accordingly.

The type of training afforded by most of the dental schools does not promise to make the practice of dentistry the health-service equivalent of an oral specialty of the practice of medicine, and important general improvements of dental education are required for the attainment of that objective. Appreciation by dental teachers of the necessity for thorough instruction in the mechanical aspects of the practice of dentistry has seldom been accompanied by due comprehension of the need for intimate understanding of the pathological involvements and of the health-service relationships of such practice. Consequently, in most dental schools, instruction of dental students in the medical sciences has been unwisely directed, indifferently given, and poorly assimilated; and the practice of dentistry has failed, from lack of knowledge, ability, and vision, to measure up to its opportunity in health service. The general practice of dentistry is based on an amount of pre-professional education—graduation from a high school or its equivalent—that is too slight to sustain the mental load of effective study of the medical sciences. If the pre-dental educational requirement were raised to equality with that of the pre-medical—at least two years of appropriate work in an academic college—the necessary medical sciences and their applications could be taught to dental students as effectually as to students of medicine, and there would be not only less current general disparagement of dentistry as intellectually inferior to medicine, but also less embarrassment of dental progress.

To make the dental practitioner an expert in reparative and reconstructive procedures—a good dental mechanic, in short—has been the paramount purpose of dental education, which has been primarily manual training. In the attainment of this important aim, a broad preliminary education has been mistakenly regarded by dental leadership, with notable exceptions, as a subordinate qualification, which, while perhaps theoretically desirable, was practically unnecessary and apt, from the length of time required for its acquisition, to delay the beginning of dental study until a period in the age of the student when his capacity for ac-

tive development in manual dexterity had become impaired or lost. Immaturity and ignorance, with hypothetically superior neuromuscular adaptability to digital training, have been preferred to relative maturity and wisdom, with greater degrees of understanding and capacity.

Owing to the prevalence of such mistaken views, a heritage from the days when dentistry was a mechanical trade, only twenty-two of the forty-three dental schools in this country in September, 1924, required work in an academic college for admission. At least one year of such study was first exacted effectually by fifteen schools in 1921, under the leadership of the Dental Faculties Association of American Universities. Very few practising dentists in the United States have been students in an academic college. Practically all of the graduates of dental schools in this country, including those of 1924, have been trained in institutions where the professional curricula were based on academic requirements ranging from nominal "possession of a good English education" to graduation from a high school; but in 1925 all of the graduates for that year from seventeen dental schools in this country had at least one year of instruction in an academic college, and by 1928 the graduates of a majority of the schools will have received that extent of preliminary education. An admission requirement of at least one year of approved work in an accredited academic college is now among the Dental Educational Council's minimum requirements for its Class A or Class B rating, beginning in September, 1926. Therefore, practically all graduates in dentistry in 1930 and thereafter will have had at least one year of instruction in an academic college. Medical education in this country has been based almost universally, since 1918, on an entrance requirement of at least two years of work in an academic college, including some prescribed subjects of study, following graduation from a four-year high school. From present indications, it may safely be assumed that this pre-medical requirement will never be reduced in length. Since that extent of preliminary education is concededly desirable for such medical specialties as oto-laryngology, rhinology, ophthalmology, and dermatology, it should be equally valuable for dentistry as an analogous mode of health service.

The foregoing views may be summarized in the general statement that dentistry is a highly mechanical division of the healing art, which

has been closely organized independently of medicine, and, although not an accredited specialty of the latter, is a very important division of health service that should be extended in scope and improved sufficiently to make it equivalent to an oral specialty of the practice of medicine, either as an accredited part of medicine or independently of it. Among the chief improvements that such expansion and betterment would involve are deeper appreciation, among dentists and physicians, of dentistry as a division of *health service*; more effectual teaching of the medical sciences and of their applications both to prevention and to treatment; and an amount of preliminary education that would not be less than the minimum required for medicine.

Full attainment of the service equivalence of an oral specialty of medicine, by dentistry continued in its independent organization, appears to depend, also, upon general reorganization of the system of dental education on the basis of such adjustments and additions as these—modifications which already several of the best schools closely approximate in important respects:

(a) Requirement of at least two years of suitable pre-professional work in an academic college, including several extra courses in such subjects as oral hygiene, fine art, and mechanics, that would either stimulate interest and develop ability in the prospective practice of dentistry, or reveal ineptitude.

(b) Reorganization of the undergraduate curriculum in dentistry into three academic years instead of four, each suitably lengthened if necessary; and the curriculum made particularly effective for intensive and integrated training in medical science, dental technology, clinical dentistry, and oral medicine, in preparation for the safe initiation, by the graduate, of competent general practice of dentistry. In this curriculum, the courses should be equal in quality to those in the corresponding subjects in the undergraduate curriculum in medicine, and as far as possible interchangeable with them; the degree of B.S. to be awarded at the end of the second or third dental year, or B.A. to students who complete three years of work in an academic college before admission, in accordance with the customs of the colleges and universities concerned; and the professional degree, on graduation, to be that required for admission to the license examinations, which at present is D.D.S. or D.M.D.

(c) Addition of optional, full-year, graduate curricula, based on the three-year undergraduate curriculum and conducted on a high plane of scholastic quality, for systematic and intensive training in all types of oral specialization, including teaching and research, commensurate degrees, among them M.S. or M.A., to be awarded after at least one year of successful advanced work; and Ph.D. after at least two more years of such study and adequate attainment in research.

(d) Development of combined dental and medical curricula, with adequate dispensary and hospital facilities, for united medical and dental training of specialists in maxillo-facial surgery, public-health administration, medico-dental research, and, in general, of practitioners of the types of oral health-service that embrace most intimately the joint responsibilities of medicine and dentistry; academic and professional degrees to be awarded in accord with the nature of the study concluded and the achievement therein.

(e) Establishment of dental service including dental internships in hospitals, and of dental infirmaries in the out-patient departments; and the proper use of these clinical resources and opportunities not only for the instruction of undergraduates, but also for the promotion of graduate work.

(f) Provision of advanced courses for dental practitioners, and curricula for the proper training of hygienists, technicians, and assistants.

(g) Creation of adequate library facilities, now conspicuously absent from most dental schools.

(h) Active promotion of research, now almost non-existent in the schools of dentistry.

(i) Discontinuance of all independent dental schools, unless they can be sufficiently endowed, suitably affiliated, and properly equipped to promote satisfactorily the teaching of modern dentistry, which cannot now be claimed for them.

(j) Organization of additional dental schools, where there is need for them, in close affiliation with schools of medicine in universities.

These advanced conditions could not be established without increased financial support of dental education; but, with adequate additional resources, the most important dental schools in this country and in Canada would promptly effect the proposed improvements. A dental

school cannot develop the highest degree of educational quality, or the greatest measure of humanitarian service, from a financial soil consisting solely of the fees paid by the students and patients, on which most of the schools are now obliged to subsist. Although dentistry is a mode of universal health service, the public has done little to advance it. Endowments for the effective maintenance of the best schools of dentistry, and for cumulative improvement of their work, are urgently needed in the public interest. In this important respect dental education is identical with medical education; but, hitherto, in an era notable for the generous financial support deservedly accorded to medicine, the similar needs of oral health-service have been almost wholly ignored.