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Numerous articles and lectures are being published in our dental journals on dentistry and its future, and in the national press and magazines of various countries on dentistry as a health service. It is becoming increasingly obvious that dentistry has come to a crossroads in the paths of its progress as a health profession and, with this in mind, I posed six questions in my report as Secretary General of the Federation Dentaire Internationale to the General Assembly of the Federation at its annual meeting in Dublin, June, 1960. The delegates present felt that the questions were worthy of discussion at special sessions of the General Assembly in Helsinki next year and Cologne the year after.

I have asked about 70 colleagues in various countries for their personal replies to the six questions, and after studying their answers I am more than ever convinced that the dental profession in every country must consider whether its system of education and its organization as a profession is adapted to the present and future demands likely to be made upon it as a health service.

As so much has already been written about this, few original thoughts can be put forward. I shall therefore give you my personal views which are based on a fairly broad knowledge of international dental organization and practice, and indicate the line of thought and action which I believe those responsible for dental health the world over should follow.

To predict the future of a profession it is well to consider its evolution. Dr. M. M. Chaves, Regional Adviser in Dental Public Health to the World Health Organization, has identified five evolutionary stages, each with its own particular type of practice. They are briefly as follows. In the first stage of undifferentiated occupation any treatment is given by lay persons as a secondary occupation; folk medicines and extractions are the only remedies for dental diseases, and
emergency dental treatment becomes available with the advent of missionary and public health services. As individuals devote themselves entirely to the practice of dentistry they acquire skill under the apprenticeship system (indigenous practitioners) and the second stage of occupational differentiation is reached. The third stage of initial professionalization begins with the organization of training courses of one or two years by the dental practitioners who group themselves in guilds. The guilds seek to impose their requirements on anyone wishing to practice dentistry thus creating conflict between their members and the unqualified practitioners. The fourth or intermediate stage of professionalization brings the establishment of independent dental schools, with dental courses of from three to six years. Professional associations become stronger and gradually the unqualified practitioners disappear. The auxiliary professions, working extraorally, with courses and legislation aimed at preventing the dental technicians from intruding into dental practice, come into being. The emphasis of dental education is on the technical aspects of the profession. With the vast increase in knowledge of dental science and art, specialization begins to appear in the larger urban areas. The fifth and last stage is the advanced stage of professionalization and of professional diversification. Dental education has become more balanced with greater emphasis on the biological sciences. Postgraduate education is developed and the number of dental specialties increases. Certain types of simple dental operations in the mouth are delegated to auxiliaries (hygienists and New Zealand dental nurses) under the supervision of the dentist. Membership in the profession is much more efficiently controlled so that practice by unqualified persons disappears, or almost disappears. It is at this stage of evolution that we like to think that dentistry has gained firm status as a health profession.

With each stage of evolution a new type of dental practice is developed as follows:

Type 1—Practice by a lay person as a secondary occupation.

Type 2—Practice by a lay person (without formal training) as a principal occupation.

Type 3—Practice by a qualified practitioner with about two years of formal training, working mostly unaided.

Type 4—Practice by a qualified practitioner with three years or more of
formal training at the university level, usually aided by dental technicians and assistants.

Type 5—Practice by a qualified practitioner as described in Type 4, but in addition with specialists available for certain types of dental work (orthodontics, periodontics, oral surgery, pedodontics, endodontics) and with auxiliary personnel doing certain types of simple dental operations.

It must, however, be remembered that the co-existence of different types of practice is a necessary consequence of the slow and gradual character of professional evolution. You can find this phenomenon in the same country or even in the same city where Type 5 practice exists in the better part of the commercial center and high income residential districts, Type 4 throughout the city and Type 3 in the low income suburbs and commercial streets of low-price type of business.

This briefly is how organized dentistry was born. What of its future development? The dental profession has the responsibility of providing a world health service but it cannot do this unless the national dental associations, which represent organized dentistry, play their part. The strength of these national organizations which in turn provide the strength of the dental profession, is dependent upon the unity and loyalty of every member. Not only the rank and file of practicing dentists, but also the teachers and scientists of the academic dental world must actively support their national association and speak with one voice if the profession is to progress. An outstanding example of a strong national association is the American Dental Association which is able to act as the sole negotiating body with the Government, universities, health organizations, commerce, etc.

The time has come for the national dental associations throughout the world—not only the administrators but also each individual member—to take stock of the situation and consider whether the conditions prevailing in their particular country are best suited to furthering the development of the profession and providing a health service for all the peoples of the world and not just the favored few. I hope that frank answers to the six questions I have formulated will show us where our failings lie and enable us to orientate our thoughts towards the attainment of this objective. My own answers to the questions are as follows:
QUESTION 1. DOES DENTISTRY AS A PROFESSION ATTRACT THE BEST QUALITY MEN AND WOMEN TO ITS RANKS—TO BECOME TEACHERS AND PRACTITIONERS?

In answering this question we must think of the population per dentist ratio, for it is quite obvious that in a country where there is one dentist for every million or more inhabitants, the standards of selection of those entering the dental profession should differ from those in a country where the ratio is 1 to less than 3,000. I think that when considering the essential facts in relation to population and educational standards, the obvious answer must be that we are not attracting the best quality men and women to our ranks. My reasons for feeling this are numerous and touch upon many facets of present day conditions.

In its evolution, dentistry has progressed from the stage of being an empirical art learned by apprenticeship to that of a highly technical and mechanical craft, and from there it should have evolved at the present day into a special field of medicine practiced by university educated and trained graduates, who treat diseases of the mouth in relation to the body as a whole. This evolution of dentistry into a scientific health profession should have taken place concurrently with an increasing appreciation of health by the general public, and, if the dental profession is to maintain its place and status, it must attract a large number of high quality men and women as students to its schools.

Let us consider first the general position. Despite the increase in the number of young people proceeding to universities and other higher educational institutions, there are still not enough capable persons to fill the positions requiring special training in any field. The result is fierce competition to attract the best of them into business, commerce, and industry as well as into the professions. The professions themselves have raised their educational standards, and dentistry has to compete with medicine and the other allied professions for the few students who have had a basic training in the biological sciences. With a wide variety of posts open to them on graduation, students will naturally aim for those offering a high salary, with fringe and pension benefits, work in a good climate, time and pay for postgraduate studies. To what extent is dentistry able to attract recruits in these circumstances? The problem of attracting high
quality men and women as dental students is inseparable from that of establishing well informed and balanced teaching faculties in the dental schools throughout the world. By “well informed” and “balanced” I do not mean only dental disciplines. Our faculties are in great need of teachers in other disciplines as well. We dentists, men and women, can play our part in attracting the right people to our ranks. By virtue of example and service in the society in which we live we must create that feeling of respect which makes others want to follow our profession.

Furthermore, it is not only a question of educating the best quality people for the profession, if dentistry is to maintain its position in the society in which it works, but also of educating society regarding the importance and value of dentistry as an attractive profession and correcting the widely prevalent misconceptions about dental practice. Organized dentistry must recognize the present day needs and demands of community life, and by good public relations and sound administration make the public realize that we are aware of our responsibilities and are able to handle them like a great profession. This also means that dentists in those countries where there is a state health service must be fair-minded about public services paid for by taxation, and not underrate them in relation to services bought by private income. We can then hope that a part of what is every nation’s greatest asset—its youth—will be encouraged to take up dentistry as a career.

**QUESTION 2. IS THE PRESENT SYSTEM OF DENTAL EDUCATION BEST SUITED TO PRODUCE PERSONS WHO WILL PRACTICE DENTISTRY AS A HEALTH SERVICE RATHER THAN AS A DENTAL ART?**

This question might be thought to imply that there is only one system of dental education throughout the world. This is of course incorrect, for if we refer to our chart showing stages in the evolution of the dental profession, we see that this necessarily involves many levels of dental education. The growth of dental education is generally concomitant with the economic development of a country. For example, the dental course has been lengthened in many countries from two to six years over the past sixty years. However we are now in a phase of world development, where the standards of living and health in the advanced countries become the goals which the less developed countries want to reach as soon as possible. National pres-
tige demands that educational standards compare with the best in
the world and, in the less developed countries, this has usually meant
the setting up of dental schools based on the present pattern of those
in Europe and in the United States, thus transplanting the system
of dental education from countries in the intermediate and ad-
vanced stages of professionalization to a country in the stage of occu-
pational differentiation, thereby by-passing the initial stage of pro-
fessionalization. The advantages of being realistic, and planning for
dental educational standards to rise with the level of general edu-
cation and social and economic development of a country, do not
seem to be considered in some countries. Yet it is the natural pat-
tern of evolution of dental education and practice. An example
of this is India with a population of 408,000,000 people, with ap-
proximately 5,000 registered dental practitioners of whom less than
1,000 are fully qualified, and which now has 11 dental schools. These
schools graduate about 100 dentists per year and have a curriculum
of six years—two years pre-dental and four years dental. Theoreti-
cally the standards are the same as set in the U. S. A. where the ratio
of dentists is approximately 1:1,800. This concept of professional
education in the less developed countries ignores the necessity to
provide health service personnel to meet the needs of a population
and is quite unrealistic.

Now what is meant by practicing dentistry as a health service
rather than a dental art?

Let it be clear that by health service I do not mean a public dental
service such as is practiced in Great Britain, but the provision of
dental health for the masses, whether privately or in state-run
schemes, wherever there is need.

Once again we have to recall the evolution of dentistry and we
know that as far back as the Egyptian dynasties and in Ancient
Greece a dental art was practiced as a specialty of medicine. We read
of primitive dental techniques in Europe during the 14th, 15th and
16th centuries but it was not until the 18th century that one noted
an advance in the status of the dentist. For example, Pierre Fauchard,
1678-1761, wrote a textbook on dentistry describing various tech-
niques, and John Hunter helped to lay the foundation of dental
education by arranging in 1782 a special course of lectures on den-
tistry.

In an attempt to correct the ravages of dental disease the few
surgeons who specialized in dentistry developed the art of maintaining and replacing teeth by such methods as implantation, joining teeth together, and the making of dentures. As time passed, and with the help of the jeweller, the porcelain worker, the metallurgist and the engineer, new techniques developed, and during the latter half of the 19th century dentistry evolved from an empirical art taught by apprenticeship into a highly mechanical craft practiced by dentists with a high degree of manual dexterity but with little or no scientific background. In the early 1900's the X-ray was developed (1896-Roentgen), and then came William Hunter's² famous statement:

No one has probably more reason that I have had to admire the sheer ingenuity and mechanical skill employed by the dental surgeon. And no one has had more reason to appreciate the ghastly tragedies of oral sepsis which his misplaced ingenuity so often carries in its train. Gold caps, gold fillings, gold bridges, gold crowns, fixed dentures, built in, on, and around diseased teeth, form a veritable mausoleum of gold over a mass of sepsis to which there is no parallel in the whole realm of medicine and surgery.

This statement, supported by the papers of William Willcox and Frank Colyers³ on septic dentistry in 1910, brought the realization that to practice dentistry as an art was not sufficient, and that the course of dental training must include a study of the basic medical sciences, anatomy, physiology, pathology and the principles of medicine and surgery, thus introducing the science of dentistry as well as the art, into dental teaching and practice.

The next 20 to 30 years saw the development of the biological education of dentists but with a good deal of the course still devoted to the arts and crafts of dental practice. And while there have been more changes in the curriculum one may fairly say, I think, that this is the situation today. The dental graduate of today, while he has a much better biological education on a broader scientific basis, still enters the profession with the background of dentistry as an art, and his practice is chiefly dependent upon the execution of techniques.

Dr. J. B. Macdonald⁴ of Boston, however, states as his first and basic premise that progress in meeting the increasing future gap between supply and demand for dental treatment cannot be met with an approach based on techniques alone. Improvement in dental health can come only from "a program of dental education in which the central theme is prevention." "All significant improvement," he
continues, "in the dental services of the future will come from develop-
ments in the basic sciences" and "the training in the biological
sciences must be equal in scope and quality to the training provided
for medical students."

Byron S. Hollinshead, Director of the Committee on the recent
Survey of Dentistry in the U. S. A., writes:

I come to the suggestion that dentists should establish a new section of
dental health practice which would be allowed to develop as a four year
course, meeting three hours per week each semester. What would such a
course cover? This would depend upon the school and the teacher in
charge, but certainly the following topics should be included: history
and orientation; dental health and society; psychological and economic
factors in practice; hospital relations, including education and research
and professional ethics. These subjects are so important that to devote three
hours of class time per week to them seems little enough.

Dr. Philip Blackerby, Director of the Division of Dentistry, W. K.
Kellogg Foundation, sums this up very well by stating that the sub-
jects of social import in the dental curriculum are now taught in-
adequately by the dental schools and should be regrouped and inte-
grated under a Department of Social Dentistry, with co-ordinating
as well as teaching and research objectives and functions, and di-
rected by a competent dentist with education and experience in pub-
lic health administration.

It is this concept of dental health practice, based on sound prin-
ciples of prevention and supported by new courses in social dentist-
ry, which lies behind the question of whether the present system
of dental education is best suited to produce persons who will prac-
tice dentistry as a health service. Society is beginning to think in
terms of total health and demands will be made upon the dental
profession to contribute towards this end. The dentist of the future
will have to develop improved methods to maintain oral health, new
concepts of oral hygiene, nutrition and child care in clinics. He will
have to train and learn how to use an abundance of auxiliary help
to assist him in coping with the social dental health problems of the
future.

There can be no doubt that over the years and, indeed, up to the
present, dental schools have been more concerned with the develop-
ment of technical skills—more useful in private practice—at the ex-
pense of the biological and social sciences, which are the foundation
of a real health service. I do not believe that the dental schools are
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Preparing their graduates to meet the health service demands either now or in the future.

Research must in the years ahead reduce dental disease, especially dental caries, and the maintenance of a healthy dentition in a healthy mouth will depend upon a new type of practice where the prevention of periodontal disease, the correction of malocclusion, the consideration and treatment of the problem of the child and the aged will be brought into focus.

Question 3. Has the Present Conception of Dental Practice Kept Pace With Scientific, Medical, and Social Progress?

A large part of what has been said in discussing the previous question forms the background for the answer to this question. Indeed, it is difficult in some ways to separate them. However, let us deal with this in two parts. Firstly, has dental practice kept pace with scientific and medical progress? Studying the replies I have received from all over the world I find the general view is that dental practice is keeping abreast of medical progress. I think one can summarize by saying that the concept of dental practice has kept pace with current scientific medical progress, but this is not applied currently in routine dental practice. This raises of course the question of dental schools and their present curricula and teaching methods, and it is suggested that more vertical integration is needed between the basic and clinical sciences, and that there is a shortage of clinical professors well grounded in the basic sciences.

As regards dental practice, we must consider the problem of the age groups. A large proportion of the world's dentists are in the upper age bracket and this means a marked difference in the education they received in comparison with the young graduate of today. Unfortunately after graduation dentists show little interest in research or postgraduate education, or even in reading current dental literature and, while they may realize that a study and practice of prevention and control may reduce dental disease, they obviously feel that under present conditions they cannot economically afford to be anything less than technically competent.

It is suggested with some truth that this lagging behind in preventive practice by the dentist is not his fault. For most of his professional life he carries out elementary mechanical repetitive treat-
ment for which he is paid a comparatively high remuneration—
whereas in the time he has spent training as a dentist at a university
he could be educated as a scientist and taught how to control a num-
ber of auxiliaries who would carry out the repetitive work.

The other part of the question deals with social progress, and
there is a good deal of agreement in the replies that in most coun-
tries dental practice has not kept pace with social progress. There
is no doubt that in some countries the dental profession is facing
problems to which solutions have not been taught in the dental
schools and, as a consequence, there is no proper leadership, and em-
pirical trial and error methods are used, often leading to serious
mistakes. Organized dentistry through its leaders should be guiding
the profession through the various acute problems which exist at
present, but for the most part one gets the impression that the na-
tional organizations have not kept pace with social progress in their
planning.

To the average dentist in practice, concerned mostly with per-
sonal problems, I am afraid public health dentistry, dental welfare,
and service to the community are political slogans.

In relation to social progress I think it behooves those responsible
for the education and organization of the dental profession to realize
that dentistry in most parts of the world has a franchise from the
people, granting it the right and privilege of dental practice which
means setting standards of education and practice, disciplining its
members and particularly offenders under the law. This monopoly
will only be accepted by the people so long as it can be shown that
it is for the good of the majority.

There is a tendency among members of the dental profession to-
day to look upon their privileges as the right to protect a vested in-
terest, and there is the danger that the profession is becoming suspect
in the eyes of the public and could lose some of the preferential posi-
tion it now holds.

The dental profession is being asked whether it is fulfilling its
prime responsibility of taking care of the dental health of the pop-
ulation; whether it is meeting in full the demands for its services
and whether it is providing these at reasonable cost where payments
have to be made. This applies forcibly in a country like Great Brit-
ain where the cost of a General Dental Service is approaching 50,000,-
000 pounds per annum, and the public is beginning to question
what they get for it in relation to the remuneration of the dentist and the availability of treatment.

Over the years standards of practice, conduct, and education have risen to a marked degree with the generally improved standards in a country. In the so-called advanced countries the system of dental education, while it has admittedly increased in length and presents a more balanced syllabus in relation to the basic sciences and the technical subjects, has not really changed its concept of producing a graduate equipped to conduct the highest type of private practice, seeing few patients at high fees. This concept applied, as it is, to the dental profession throughout the world, could hardly be more disastrous in its effect upon the public who see its end results as a shortage of available dental services at reasonable expense. Dentistry must adapt itself to a changing world just as other professions have done, or are doing, or must perish.

All progress is dependent upon research and in this respect dentistry is only now beginning to organize itself. We need the right personnel, proper facilities, adequate funds, and much more international co-ordination, and in many fields we have scarcely scratched the surface. At best in any system the application of new findings to teaching and practice must lag behind the research which produced them—the rate of current change is so rapid. It behooves organized dentistry, however, to alert the profession to the need for wholehearted support of research projects, both in the laboratory, clinically, and socially; then, and only then, will we begin to keep pace with progress.

**Question 4. This DEALS WITH HEALTH Programs AND Asks Whether the Dental Profession Is Prepared or Preparing to Take Its Place in the Health Program of Those Countries Which Are Planning a Total Health Care of Their Populations**

This immediately raises the question as to which countries have a program of total health care of their population, and which are planning to have one. By and large, all the communist countries have a National Health Service with dental care as part of that service, and the only country in the Western World with a fully comprehensive National Health Service is Great Britain.
There is no doubt in my mind that the peoples of the world will, in the future, demand of their governments a National Health Service, and the purpose of this question frankly was to stir organized dentistry into asking itself—how far are we prepared to take our place as a health profession in such a service when it comes to our country? This is not the place to discuss the merits of or objections to a Health Service, especially as it applies to dentistry. The point is that we have many examples to study, both in the communist and democratic countries, where there are total or partial Health Services, and there can be no excuse for the dental profession in any country not being prepared for the problems of a complete social health service. The example of how the majority of the members of the British dental profession failed to follow the policy of their leaders when the National Health Service was introduced into Great Britain should be a reminder to any national organization which refuses to look at this as a problem of the immediate future.

The world in which we live is, by and large, governed by two kinds of political thought, Communism and Social Democracy. The interesting thing, so far as dentistry is concerned, is that in the communist countries the dental profession has taken its place in the total health care of the population. Standards may be much lower than in some of the democracies, but undoubtedly organized dentistry, admittedly government-controlled or supervised, is an integral and effective part of the national health service. Their system of education is slowly turning out large numbers of better trained stomatologists, i.e., dental practitioners with a medical background, and in the meantime lesser qualified men and women are fulfilling the day to day dental demands and very great use is made of auxiliary help. The accent is on prevention. Once one can appreciate that a dental health service can be given with the clinical dentistry not of the highest standard, but with health education and preventive measures occupying a prominent place, then there must be a lot to be learned by a careful study of the methods used in the communist countries.

In the democratic world we are in a real state of flux. In a highly developed country like Great Britain we have a comprehensive health service and, frankly, organized dentistry still has no practical plans accepted both politically and economically to take its proper
place in this service. The leaders of the British Dental Association spend most of their time fighting for better terms and conditions of practice for their members working in the Health Service like the leaders of a trade union. The profession itself fights for its so-called clinical freedom, and yet, a very large percentage seem well content to work in the service. And what of the dental service, what kind of example has it set to the rest of the democratic world? In fairness one must say that more of the British population have received dental treatment than ever before, and that by and large the dental health of the adult population is probably better. But we still have the appalling lack of treatment for the children, little or no health education, no large scale prevention, very little research and an expenditure of fifty or more million pounds per annum, mostly on a breakdown or repair service. The public will not allow any government to tolerate these conditions indefinitely and if dentistry does not take the necessary steps, then inevitably experts in other fields will be called in for advice and action.

What of other countries? The Executive Boards of the national dental associations of Canada and the United States met for the first time in joint session in May 1960 to discuss long-range plans for meeting the rising demands for dental health care in both countries. In a news release they agreed upon the following points:

The profession should provide leadership in the field of dental health but all community agencies must help to provide more adequate and better distributed health services.

The adoption of such proven measures as the fluoridation of public water supplies, plus greater emphasis on dental health education, would permit the development and application of resources to meet public needs adequately.

Governmental and other agencies should provide funds earmarked for expanded programs for the training of all types of dental personnel—particularly dentists—and for broader dental research programs.

In the planning of any dental care program, priorities must be established to provide maximum health education and treatment for younger age groups, and greater attention must be given to the integration of high standard dental care into total health programs.

There are signs of a world-wide awakening of the dental profession and the dental health programs of Great Britain, the Scandinavian countries, New Zealand, Russia, Czechoslovakia, Hungary, Brazil, the Netherlands, Switzerland, and Germany need to be studied and
personal biases and learned prejudices be put on one side, so that the dental profession in each country is in a position to accept the responsibility for organizing and supplying the total dental health care of its people.

**QUESTION 5. IS THE DENTAL PROFESSION READY WITH PLANS TO ADVISE THE PEOPLES OF THE WORLD HOW TO AVAIL THEMSELVES OF PRESENTLY ACCEPTED AND NEW MEASURES FOR THE MAINTENANCE OF ORAL HEALTH?**

In a Summary Report of the Commission on the Survey of Dentistry in the United States, 1960, conducted on behalf of the American Dental Association by the American Council on Education, the Commission makes very practical suggestions as to how the dental profession in the United States should take care of the dental health of its people in the future. I shall quote freely from this report which merits careful study by dental administrators and educators all over the world.

This question could be considered a question of dental health education, not only of the public, but of all those concerned with the health professions, including physicians and dentists.

I do not think it can be denied that the world's population is appallingly ignorant of the importance of dental care and the hazards of dental neglect and, basically, it is the practicing dentist who must bear the blame for this, for the public's contact with dentistry is primarily through the dentist. In a country like Great Britain, with approximately 10,000 practicing dentists, it can be fairly assumed that each dentist sees 20 patients per day—this means a total of 200,000 people are seen per day, and therefore one million in a five-day week. What an enormous influence, both politically, educationally, and socially, the dental profession could exert on the population. The same applies, of course, to many countries.

Dental health education must come primarily from the dentist, but his dental organizations must have an effective program to reach the allied health services, health education authorities and schools, and such programs must have the full political and economic support of the state.

You will be interested to learn that the FDI sponsors in Zurich, Switzerland, an International Office for Dental Health Information
which collects dental health education material from all over the world, catalogues it, distributes information about it, and will plan dental health education campaigns. This office is under the direction of Dr. Hans Freihofer who has written:

Our experience shows that whilst dentists and health authorities in most countries are making energetic efforts towards progress in the field of Dental Health Education, what exists today can, however, with the exception of a few countries including the United States, be only described as totally inadequate.

Although Dr. Freihofer excludes the U. S. A., the Commission on the Survey of Dentistry (U. S. A.) gives the following information:

In the United States it is estimated that there are in the neighborhood of 700 million untreated cavities, an average of nearly four per head of the population. By the age of fifty, nearly 50 per cent of the population have developed periodontal disease and by the age of sixty-five nearly 100 per cent. A little over 40 per cent of the population visit a dentist every year, an additional 30 per cent receive some care, and the rest, about one-third of the nation, no care at all, except a possible extraction to relieve pain.

Now what are the presently accepted dental health measures of which the people of the world can avail themselves? This must be considered from two angles; firstly what the people can do for themselves and, secondly, what can be done in co-operation with the dentist and his auxiliary help, for there are basically only two ways to cope with the dental health problem: 1. Prevent dental disease; and/or 2. Treat it.

The dental profession, in conjunction with public health agencies, civic authorities, parent and teacher groups, and commerce, must in every possible way stimulate public appreciation of the importance of dental care, not only for its own sake, but because of its relationship to total health care. What should such a program stress?

1. (a) In all countries where there is piped drinking water the public health measure of the fluoridation of drinking water offers striking benefits, reducing the tooth decay rate by 50-60 per cent. (b) Where there is no public water supply, other methods of using fluoride can be adopted, although they are not yet supported by conclusive evidence: (1) Topical applications of fluoride solutions; (2) Adding fluoride tablets to food or drinking water or (3) Using fluoridated tooth paste currently given qualified approval by the American Dental Association.
2. Instruction on good oral and dental habits in children’s schools by properly trained teachers on a systematic continuous basis. This would include current use of the tooth brush, what kinds of food to eat and some general knowledge of how teeth grow and should be used, and what makes them decay and loosen. They should also be taught what the dentist can do for them.

3. A large scale public dental health education program on a continuing basis over the television and radio and in the press.

This large scale educational program should make it clear that for a long time to come prevention, in the battle against dental disease, must be reinforced by treatment. The public must be made aware that treatment carried out early enough is preventive in itself—a small filling can save a tooth, and periodic scaling and cleaning will most likely prevent periodontal disease.

Many countries have argued that a campaign of dental health education will produce such a demand for treatment that lack of dental manpower will defeat the purpose of the campaign. This has yet to be proved, but should only strengthen the case for widespread use of fluorides, more good oral hygiene practiced in the home, more attention to eating the correct foods and giving the children priority of dental treatment as a preventive measure, plus a public demand for the State to supply more dentists and properly trained auxiliaries to help them.

Now let us turn to what the dentist should be doing for his community, for he is the key man in any effort to give the public dental health. Dentists all over the world must participate vigorously in community public health projects.

In his practice the dentist can carry out five preventive procedures in an attempt to forestall dental disease.

1. Routine scaling and polishing. This, in my opinion, when coupled with effective home care, is a great practical preventive of periodontal disease but of course not the complete answer.

2. Topical application of fluorides and prescribing the use of fluoride tablets for expectant mothers and babies where drinking water is not fluoridated.

3. Routine use of X-ray for examination starting from an early age. It should be noted here that with the proper precautions, exposure can be reduced to a safe amount, both for the patient and operator.

4. The effective use of a recall system for all patients for examination and cleaning.

5. The study of habits and early correction of donto-facial deformities.
It is interesting to speculate how few dentists in the world conduct their practice along the above lines and yet, this is what the profession should be teaching the public to expect from their dentist. It is also interesting to reflect how much of this preventive practice could be carried out by auxiliaries.

Now the question also speaks of new measures for the maintenance of oral health, and this brings me to the question of research, for the most hopeful avenue leading towards the prevention of dental disease is research. Yet nowhere are the potentialities of dental research being fully exploited. It has taken 20 years for the use of fluorides to become a practical preventive measure. How much longer will it be before the dental profession is able to identify the organisms responsible for decay, prevent the formation of calculus, or solve nutritional problems connected with teeth formation and breakdown?

Apart from investigations in the natural sciences, there is a great need for research in the social services in connection with dental health problems. For example, what are the economic and socio-logical reasons why people do not seek or obtain dental care when it is available? There must also be close collaboration between science and commerce, for industrial research is continuously producing new materials, and these must be evaluated and standardized on an international basis.

Thus new measures for the maintenance of oral health are dependent upon:

1. Our universities which must develop close relations between all their departments to promote an exchange of knowledge and ideas.
2. Our dental schools which must stimulate more interest in research by both faculty and students and must create more time for research.
3. Our social services, to promote the knowledge of how people live and think in relation to their health. Here a study of Health Services in the communist countries would be useful.
4. Commerce and industry for the knowledge concerning the production of new materials and for providing funds for research.
5. The State to provide sufficient funds to produce scientific research workers and support their programs.
6. Adequate means of making the knowledge produced by research known, understood, and applied all over the world. This means good publications and strong support of such organizations as the F.D.I., the I.A.D.R., ORCA, and ARPA, by all national organizations and State Public Health Services.
QUESTION 6. WHETHER THE DENTAL PROFESSION IS PREPARING TO EDUCATE AUXILIARIES CONCURRENTLY WITH ITS OWN EDUCATIONAL SYSTEM, SO AS TO ENSURE THAT THE STANDARDS OF DENTAL PRACTICE ARE NOT ALTERED, AND THAT SUCH AUXILIARY SERVICES ARE RECOGNIZED, ORGANIZED, AND CONTROLLED TO THE BENEFIT OF BOTH THE PUBLIC AND THE DENTAL PROFESSION

In the study of auxiliary services I suggest we define the word auxiliary as covering all forms of subsidiary dental personnel who are of assistance to the dentist and who work under his direction and supervision (WHO Expert Committee Report on Auxiliary Dental Personnel—1958).

Let me now return to our original description and chart of the evolution of the dental profession. The first three stages saw the development from crude treatment by a lay person, through the indigenous practitioner, still a lay person, to initial professionalization and organization as a profession—the dentist still working mostly unaided. The fourth stage, of practice by a qualified practitioner with formal training, produced with it the recognition and organization of two types of auxiliary personnel: the chairside assistant and the laboratory technician. At this stage courses and legislation were established, mostly for the dental technicians, to prevent their encroachment into dental practice. The chairside assistant was, for the most part, trained by the dentist. Then came the fifth stage of evolution, the advanced stage of professionalization, and with its development we find two further types of auxiliaries, namely the New Zealand dental nurse, trained to carry out curative procedures—fillings and extractions on children—under government employment, and the dental hygienist, trained to carry out preventive procedures and working both in Public Health Services and in private practice. Thus we have two auxiliaries who do not work in the mouth but assist the dentist in his work, the chairside assistant and the laboratory technician; and two, the dental nurse and the dental hygienist, who do work in the mouth as a substitute for the dentist, but under his supervision.

It is common knowledge that a current international problem is the desire of the technicians to change their status so that they may work in the mouth and they are receiving support in some parts
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of the world, simply because the dental profession is not supplying the essential dental services required. Let us face facts. In many parts of the world the dentist population ratio is of such a nature that there are simply not enough dentists to take care of the dental health of the population. In fact, in every country in the world there would be a severe lack of dental manpower if treatment were based on need and not demand. It cannot be denied that the failure of dentistry to delegate as many as it can of its routine tasks to auxiliaries, even with the current laws in existence in various countries, has markedly reduced the ability of the dental profession to fulfill its responsibilities as a health service.

In the social evolution we are going through it would appear that the dental profession has failed to change with its sister professions. Medicine makes use of many auxiliaries; the law has lost or voluntarily relinquished many duties that used to be its sole prerogative, and the same may be said for accountancy and architecture.

Now the question mentions educating auxiliaries concurrently with our own educational system and, in my opinion, it is this very point that has prevented dentists from utilizing the services of auxiliaries properly. Our current system of dental education does not allow for the training of auxiliaries alongside our dental students, thereby teaching them how to increase their productivity.

Under the heading "Productivity in Dental Practice," the Commission on the Survey of Dentistry in the United States states that the preventive approach to better dental health for more people will not in itself solve the dental manpower problem and makes recommendations dealing with auxiliaries as follows:

— that dentists utilize a greater number of well-trained dental assistants;
— that the dental profession conduct studies designed to develop and expand the duties of auxiliary personnel;
— that as soon as the dental profession standardizes the educational programs for dental laboratory technicians and for dental assistants, consideration be given to widening the duties of these auxiliary groups. In the public interest the education of auxiliary personnel should be carried out under the guidance of the dental profession and the services performed by all auxiliary personnel should be under the supervision of licensed dentists;
— that dentists be required by law to provide dental technicians with written prescriptions for the fabrication of dental appliances and that these regulations be strictly enforced;
— that additional facilities be provided for the training of auxiliary personnel, both in dental schools and other institutions;
that dental schools give students more experience in working with auxiliary personnel, especially with dental assistants. Students should understand completely the importance that effective utilization of such personnel plays in the practice of dentistry.

The Canadian Dental Association has also issued a policy statement suggesting that properly qualified and recognized dental auxiliaries could be trained to render a broader scope of service than that presently recommended. These suggestions are of course practical and can be made effective in a country where dentistry has evolved to the advanced stage of professionalization—but viewed internationally, large sections of the population of the world are without effective dental treatment, and the problem is that we need many more dentists as well as an extension of auxiliary help.

I should like to bring to your notice the report of the WHO Expert Committee on Auxiliary Dental Personnel (1958). This committee found it necessary to make separate recommendations for the use of auxiliary personnel in countries with organized dental services and for countries with little or no dental service.

The report defines organized dental service as a dental health service rendered by private dental practice, group dental practice, voluntary or philanthropic agencies, industrial dental health schemes, and local or central government dental services. It states that the service rendered by any or all of these agencies can be augmented considerably by the maximum and efficient use of the appropriate auxiliaries and mentions dental chairside assistants, laboratory technicians, and in certain areas the school dental nurse and the dental hygienist, as being of special value.

The report suggests that attention should be given to an extension of the dental team approach.

For those nations whose people are receiving very little or no dental health care, the report recommends that each nation should give proper recognition to the dental health needs of its people by establishing a dental administration unit in its public health organization. In those areas in which there is no professional dental personnel, the report suggests the training of a "Dental Licentiate" with a course of training of not less than two years, who shall act as the normal dental practitioner. He is to be assisted by auxiliaries, one of whom would be called the "Dental Aide" and after a course of four to six months and six months in the field, the latter would be able,
for example, to relieve pain by extraction, under the supervision of the Dental Licentiate. As soon as a sufficient number of Dental Licentiates had been trained, the need for Dental Aids would disappear and different types of auxiliaries would be developed as part of the health team.

It is suggested that the educational program for both the Licentiates and the auxiliaries should be planned so that it can be lengthened over a period of years. In this way individuals could receive further training, and advance in stature and position, and a more comprehensive service be built.

I have always felt that there is a case for a reconsideration of our present educational system in that there should be opportunities for our dental auxiliaries to start at the bottom of the ladder and to advance by stages of experience and further education. With careful selection of the proper people to enter the field of dental service and a satisfactory educational level, one can visualize a man or woman starting as a dental assistant and finishing as a dental consultant or specialist, having risen through the stages of dental nurse, hygienist or technician to dental licentiate, dental specialist and stomatologist. This could be called vertical education and, although I realize that with the present system of dental education in the more advanced countries such a scheme would meet almost unsurmountable difficulties, I believe that such a plan should be studied more carefully than it has been. I suggest it would be found to be practicable and would be a much more honest attempt to provide a dental health service than many of the efforts which at present exist in the world, especially in the less advanced countries.

This may not be quite the place to speak of the present system of education, except that, as I said before, it is not conducive to including within the present system a concurrent training of auxiliaries. I think the whole concept of teaching dentistry should change in that the course should be built around the maintenance of the supporting structure of the teeth, i.e., the study and practice of periodontia. Thus the base of the dental course would be a study of the inflammatory and degenerative procedures attacking the soft tissues and bone surrounding and supporting the teeth. The whole curriculum would be built from this concept of the health of the supporting tissues of the teeth and the many influences which affect that health. Then diagnosis, conservation of teeth, replacements, cor-
rection of occlusion—all fall within their proper place in the dental course. This would also allow for correlation of the basic sciences with clinical practice from the beginning of the course, and would make the training of auxiliary services concurrently with the dental student much easier.

At a conference on the utilization and training of dental assistants held in September 1960, at the headquarters of the American Dental Association, Dr. Harold Hillenbrand, Secretary of the A.D.A., made the following remarks:

In many countries of the world, the dental profession, under its own initiative or by force of circumstances, is being compelled to review and revise its present attitude and policies on the development and duties of auxiliaries in dentistry. In my view there are at least three major reasons which compel attention by the profession on the problems of dental auxiliaries:

1. A real or alleged shortage of dental personnel, or a maldistribution of dental personnel, tend to focus the attention of the public and of government at various levels on the real or alleged unavailability of dental service for some segment of the population.

2. The acceptance by an increasing number of citizens of the fact that dentistry is an essential part of a total health service and that dental care is no longer an optional benefit but one which must be included as an integral part of an ever increasing standard of life. Over the years the dental profession itself has taken the major role in promoting these concepts, and it is now being asked to make them a reality for more of the citizens of the country.

3. Both of the factors just mentioned, as well as many others, have made health into a major political issue in many countries. The inevitable expansion of social security systems has created a demand for more sophisticated health benefits and dental care is taking its place as one of these expanded benefits.

There can be no question but that the dental profession will need to make important decisions, in the not too distant future, in regard to its auxiliary personnel. These decisions should not be made under public or political pressure, but the only way to forestall such an eventuality is to have a profession armed with information and program.

Dr. Hillenbrand, I think, very effectively sums up the present position of the dental profession in many countries regarding its auxiliary personnel.

My information regarding the communist countries leads me to believe that they have schemes which guarantee that dental assistants receive a good training leading to a statutory examination, and dental technicians have a three year training with examination. After a further year's training, at state expense, at a master dental tech-
nicians' college, the dental technician can become a master technician. All auxiliaries can attend conferences and postgraduate courses and so move into a higher salary scale. It is also of interest to note that auxiliaries belong to the same organizations as the physician and the dentist—simply to different sections of it.

**Conclusion**

An additional question might be added to those I have attempted to answer in this contemplation of "Dentistry and Its Future," namely why were the questions ever put, especially phrased as they are, in a rhetorical form? I have been associated with dentistry as my chosen profession for over 40 years and my whole experience, especially on an international basis, makes me want to say to every man and woman belonging to our profession: Let us not overrate our importance as a profession or our value to the community—and let us not be hypocritical about our rights of professional freedom and our high standards of practice and professional conduct. Let us each ask ourselves what we are doing as individuals to help provide a dental health service for the people of the world which will give pride and dignity to our worthy profession.

My years of administration of international dental affairs have made me realize that the future of dentistry lies in dental education, organization and administration, just as it has in the past, the difference being that in the past our profession has been built by men and women with individual interests, or at most national ones. My experience is that such interests tend to retard the development of dentistry as an international health service. I believe that in the future those interested in dental education and organization must have a purpose, something which will unite the profession all over the world, and that purpose must be to produce men and women able to practice dentistry as a health service, thus assisting the World Health Organization in its stated objective of contributing to the attainment by all peoples of the greatest possible level of health and well being in the widest sense of these terms.

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**Acknowledgements**

I would like, finally, to thank Professor B. Cohen for his advice, and also Miss Barker, Miss Ellis, and Miss Schiff of the F.D.I. Secretariat, for their very great help in assisting me in the preparation of this paper.
Among the chief ancient professions, dentistry was one of the last to institutionalize itself by developing formal schools for instruction. Only 120 years have passed since the establishment of the first dental school at Baltimore. It is less than a century since a dental school first became part of a university. It was only thirty-five years ago that the last proprietary dental school was closed. When one considers the recency of these events, and then sees the high standards of scientific knowledge and technical skills required of the modern dentist, the marvel is that dentistry has come as far as it has.

But to dwell on such progress would be to induce the hazard of complacency, and it is to reduce such hazards that surveys are made.

*The Survey of Dentistry*, 1961,
American Council on Education.
The Need for Continuing Education in Dentistry

SAM V. HOLROYD, B.S.

We have been granted both the great honor and awesome responsibility to provide the American people with dental health service. Toward this end we face three primary problems. First, we must provide more extensive care for a greater number of people. Second, we must incorporate into our practices more frequent changes and adjustments in order to keep abreast of modern practice. Third, we must adapt to a new era—a new era of intensified research, a greater closeness to the basic biological sciences, and an increased emphasis and dependence upon the understanding, control and prevention of oral pathology.

Increased Demands

To delineate our first problem, we see that the present active dentist-patient ratio is generally estimated to be about 1:1900.\(^1\)\(^2\) This ratio will have risen to 1:2400-2500 by 1975.\(^3\)\(^4\) It has been said that, “A profession exists to serve the public. Its controlling motive is to shape its practice so as to serve more and more people. When it becomes dominated by the guild spirit in its cruder sense and is content with obvious insufficiency, it fails to meet the obligations of a profession.”\(^5\)

The demands made upon us today will increase drastically in the immediate future. Our dental schools cannot provide us with reinforcements rapidly enough. Dentists must be prepared to take on the care of more patients and at the same time provide those improvements and refinements of treatment which are consistent with our constantly modernizing society. We cannot relax in the security of the tradesman who has been trained to reproduce a technique. We must all learn of and use new techniques, and we must all contribute to the formulation of new techniques and new treatments. We must all acquire new understanding and we must all contribute

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1. Class of 1961, West Virginia University, School of Dentistry.
2. This essay was judged first in the 1961 Writing Award Competition of the American College of Dentists.
3. 187
to the growth of understanding. We cannot afford to be trained, we must be educated; and to allow the loss of the scholar in the routines of practice compromises the status of dentistry as a profession. "One of the marks of a profession is that it is self-regulating—with standards of education, conduct and service established and controlled by the profession itself." 6 We have been granted the protection of the law so that we can provide the American people with a high level of professional care. We are thus able to dictate our own policies and plan our own futures. We supervise and discipline our own members; we use and direct technical assistance as is, in our minds, professionally sound. If in the years to come, we cannot provide the public with a level of dental care commensurate with the demands of the time, our inadequacies may leave us open to the inroads of political direction or to the delegation of our authorities to other groups. If these eventualities seem remote or absurd, let us hope they will seem as remote and absurd 50 years from now as they do today.

It becomes our obligation to the public and our obligation to our profession to make the greatest possible use of the facilities for continuing education. By a continuous examination of the literature, a conscientious participation in dental society efforts, an engagement in additional formal education whenever possible, and an increased astuteness as to one's place in the progress as well as the practice of dentistry, we will provide greater health for the people that depend upon us. Furthermore, those things we owe to the people for the public welfare, we owe to our profession for the status it deserves.

It is impossible, but unwise even if it were possible, to mass produce dentists in an attempt to compensate for a statistical prediction of a future shortage of practitioners. Through the stimulated, yet natural, growth of our educational institutions; a new emphasis upon research, control, and prevention; and more completely efficient dental practices evolved through an increased dedication to continuous study, our profession will provide for the American people, now and always, a standard of dental health and treatment of which we and all the world can be proud. We will thus fulfill our obligations and accept more fully the people's knowledge that we serve them well.

ATTAINMENT OF MODERN PRACTICE

We owe to the public a diagnosis based upon a depth of under-
standing. We owe the public a treatment encompassing the best and most modern of concepts. Some men have a modern practice only once, and that is on the day they graduate. From then on, each day, they are farther behind the times. These are the men that are today still routinely using penicillin topically. These are the men that use no epinephrine in anesthetics for cardiac cases. These are the men that ignore periodontal disease for the lack of knowledge of how to treat it. These are the men that will extract a tooth for the lack of knowledge of endodontics. These are the men that administer the materials and techniques of restorative dentistry that were current at their graduation, forsaking in their isolation the great advances in restorative dentistry that have taken place over subsequent years.

It would be naive of us to think that all practitioners will ever be 100 per cent cognizant of all information relative to ideal practice. We must be realistic enough to acknowledge that there are factors inherent in dental practice that defy an ideal practice. But we must make every effort to exist as a profession aware of all that is required to provide the best of possible care for those that come to us with health problems. If an individual is behind the times, his dulling of the profession may be glossed over by the adequacies of those contemporaries around him, and his discreditable example may be lost in a sea of knowledgeable dentistry. But we cannot allow isolated backwardness to grow in malignant tenacity to the point that any area of our nation, regardless of how small, would lose respect for the services we provide the people. And in our present era of changing dental concepts and upon our entry into a future of greater dental research and a time of greater demand upon us, it becomes much easier to slip behind and become the man that must be compensated for.

The dental graduate is not the finished product. He has only been prepared to refine current concepts. He has an obligation to learn of and develop new concepts. He must grow within himself but he must forever reach out and embrace the progress and advancement of his profession. The repetitious refinement of past concepts cannot exist in the place of the intelligent acceptance of new ideals. Our profession is what our members are, and if we fail to make the best of that which is available to us, our profession fails to serve at its capacity. And a profession not serving at capacity concedes its rank and surrenders its public respect.
When many of those in practice today were in school, the chief emphasis was upon a technical basis, while today the teaching is upon a biological basis. One of our distinguished dental school deans states, "Many currently active dental teachers can recall when dental education was basically at the level of craft training." Dental education has come a long way since the early nineteenth century when its major objective was limited to the relief of pain and later to apprenticeship training for the practice of a craft. By the twentieth century dentistry had reached a professional level with the inclusion of the basic sciences in dental education. This led to a biological approach to dental problems with the resultant interest in research pertaining to the cause and mechanism of dental disease.

When we look back over the history of dentistry we can be justly proud of our progress, and as we find pride in past accomplishments we may be inspired by future challenges. We hear of the rapid changes in the practice of dentistry, and of "... the increased tempo of changes in the theory and practice of dentistry. ..." It is inspiring to hear eminent dentists say, "We are at the fringe and frontier of a new and marvelous epoch," and, "Dentistry may be on the threshold of a golden era."

Why should we be so enthusiastic when we consider our futures? What is this new era? The time has passed when we were "molar mechanics." We can no longer treat a tooth or an edentulous space, we have begun to treat the entire individual. We have begun to assume the responsibility with the physician for the overall health of the patient. We must know of the medical problems that will modify our treatment. We must know how our treatment will modify the medical problems. We can no longer restrict our thinking, research, and practice to the materials used in dentistry. As we treat the hard and soft tissues of the oral cavity, we are not treating an isolated entity any more than does a medical specialist acting in the area of his specialty. As we assume the responsibility for the oral cavity, we must do so with a complete mastery of the physiologic and pathologic relationships to the rest of the organism.

In the mouth we are working critically close to the vital centers of life. Certainly a knowledge of total physiology is imperative. As the scope of our treatment is broadened in the future as it has been broadened in the past, our relationship to medicine becomes much
NEED FOR CONTINUING EDUCATION IN DENTISTRY

We must be the authorities for problems concerning the entire oral cavity. It thus compromises the status and responsibility of our profession when a dental practitioner restricts his thought to the teeth. As our responsibilities are expanded our knowledge must likewise be extended.

"Research has given dentistry and dental education stature in the world of science related to the health services." We are witnessing a great increase in dental research and the emphasis is upon fundamental studies. This is certainly consistent with our broadening responsibilities. It has been said that there is a widening gap between research and clinical practice. If this is true today, with research increasing, the gap will be greater tomorrow unless we increase our efforts in a program of continuing education.

Our new era can truly be a "Golden Era" if we reach forth and accept the opportunities. Our new era can truly be a "new and marvelous epoch" if we will but expand our knowledge to support our broadening concepts and accept the fruits of research into our practices.

Our new era will not only stimulate the profession from within but will give us new vitality from without. Our practitioners are the men that send our young people into the dental schools with respect for the profession and with ideals to be fulfilled by dental study. Here is where we will gain our future strength, for a man of value will not undertake nor long endure the hard rigors of professional study without a great respect for the profession. And professional respect does not emanate from an abyss of sterility but is born in the depths of dedication to scholarly pursuits. The teachers and administrators of our dental schools must confirm the anticipation and represent those ideals that brought the students into our dental schools. But without alert, progressive, and knowledgeable practicing dentists we cannot expect to draw the new blood of vigor into our ranks. Practitioners endowed with a belief in continuous education, and with a dedication toward scholarly attainment, will not only best fulfill their responsibilities to their patients but will provide the intellectual environment which will attract new men of great value to our profession.

CONCLUSION

Let us think of our problem of providing dental care for more and more people as an opportunity to show the depth and adapta-
bility of our profession. Let us think of our problem of maintaining a modern practice as an opportunity to illustrate the dynamic and inspired nature of our profession. Let us think of our problem of adapting to a new era as being a magnificent opportunity to extend the capabilities of our profession into a broader realm of public responsibility.

Let us make a continuous effort as individuals and as a profession to reap the full benefits of progress and thereby realize the opportunities of our time.

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Editorial

BETTER DENTAL JOURNALISM

Basically (and rather tritely and obviously), dental journalism will improve only when there are better dental editors and better dental writers. The agencies involved in attaining this goal logically seem to be dental schools and dental organizations.

First, consider the role and activities of national organizations. Essentially there are only three: the American Dental Association, the American College of Dentists, and the American Association of Dental Editors. These three groups, working separately in their specific areas and collectively in the general field, will bring about needed improvement and betterment. They have done this and they are doing this. Their cooperative efforts augur well for the future.

The work of the American Dental Association through the Council on Journalism has had great influence on improvement. Their activities should continue to have an increasingly worthwhile effect. The widespread acceptance of the "Standards for Dental Society Publications," adopted by the House of Delegates of the American Dental Association, can only result in a better dental journalism. The annual Conference of Dental Editors, sponsored by the American Dental Association and the American Association of Dental Editors, inevitably will lead to greater improvement; one notable achievement has been the preparation of the "Dental Editor's Kit." Another accomplishment will come when there is a more general acceptance of professional standards in advertising and exhibits as advocated by the American Dental Association. In addition, the Council on Journalism is bringing to the attention of dental editors ways and means to support, administrate, and publish a dental periodical.

In all of these efforts, the American Association of Dental Editors and the American College of Dentists are cooperating in their several ways and within the limits of their memberships. Efforts toward improvement seem to be a total and concerted advance by all three groups. Indeed, the inter-related membership of the Council on Journalism, the Committee on Journalism, and the American Association of Dental Editors is in remarkable agreement in aims, feeling, and action. Much improvement will result from the continuance of this wholesome, cooperative attitude.
Constituent and component societies will aid in improving journalism by implementing the suggestions, and utilizing the materials provided by these national groups. This is particularly true in providing adequate support for their periodicals, in the careful selection of their editors, and in providing adequate honoraria for their editors consistent with the time expended and the ability to create a worthwhile periodical.

So far as the dental schools are concerned in this matter, there are problems. Greater attention to courses in use of the library, technical and scientific writing, and utilization of the literature is desirable; promotion and expansion in these areas would be ideal. But realistically there are the great items of time and teachers—more time and better qualified teachers for instruction. With the current and soon-to-be increased necessity for training men and women to render a still greater health service to still more people, fitting these "extracurricular" courses into the already overcrowded instruction schedule is indeed a problem.

Much more study, by all groups concerned, for an improved dental journalism will have to be forthcoming if this school situation is to be bettered and bolstered. And it might prove insurmountable.

If we would have continued improvement, we must have better editors and writers. National dental organizations, notably the American Dental Association, the American College of Dentists, and the American Association of Dental Editors, should continue and should expand their current efforts. Constituent and component societies should be made increasingly aware of their responsibilities in this matter of improvement. And lastly, the role the dental schools should play, and what they will be able to accomplish in supplying better editors and writers, should be studied more intensively by all three groups, perhaps assisted by the American Association of Dental Schools.
Acceding to the suggestions of numerous Fellows of the College that the membership, generally, be informed more fully of the Central Office facilities in St. Louis, the following picture story with brief comment is submitted. This is not a substitute for an on-the-spot observation, but a means of encouraging the Fellows to visit the headquarters to see first-hand what has been developed and how it functions.

In order to develop a better understanding of, and reason for, some of the special features, a brief history of the College and its activities seems desirable.

The American College of Dentists was organized in 1920. Those who established it believed that there was need for an organization that would be imbued with the highest ideals for the dental profession, and would also lend its influence to every movement having for its purpose the advancement of the profession and the betterment of dental services to humanity.

The objectives as then set down in the Constitution were:

1. To promote the ideals of the dental profession;
2. To advance the standards and efficiency of dentistry;
3. To stimulate graduate study and efforts by dentists;
4. To confer Fellowship in recognition of meritorious achievement, especially in dental science, art, education and literature.

Forty years have elapsed since that time—years that have witnessed changes in almost every field of endeavor. Truly, it has been a period of development and progress that has tested the soundness of many theories, and has set up new approaches and ideals in many human endeavors.

It is of more than passing interest that the present Constitution of the College, adopted in 1958, should project the same objectives as in 1920, except that the years of experience have suggested new approaches and increased determination for the attainment of our objectives. The present objectives read:
To promote the ideals of the dental profession;
To advance the standards and efficiency of dentistry;
To encourage graduate studies and continuing educational effort by dentists;
To encourage, stimulate, and promote research;
To improve public understanding and appreciation of oral health service;
To encourage the development and use of measures for the control and prevention of oral disease;
To cooperate with other groups for the advancement of professional relationships in the interest of the public;
To recognize meritorious achievement, especially in dental science, art, education, literature, and human relations by conferring Fellowship in the College on those persons properly selected to receive such honor.

The objectives of the founders apparently have stood the test of time, and continue to be the broad foundation upon which has been erected the structure known as the American College of Dentists and upon which it proposes to expand its usefulness to the public and the profession.

The early years were devoted to careful planning by individuals and groups. Gradually, committees were established to undertake specific tasks. Most of the activity of the committees was carried on by the chairman through correspondence, with an occasional meeting, usually at the time of the annual meeting. In spite of such handicaps, progress was registered in many areas.

It was in 1953 that the Board of Regents decided that the time had arrived to provide full-time employment and adequate facilities for carrying on the ever-increasing activities of the College. Our first full-time facilities were established at 4221 Lindell Boulevard in 1953. Shortly thereafter, arrangements were made to have committees meet in the Central Office annually, to spend several days discussing their problems and developing their reports.

It is not for the Secretary to evaluate the success of such developments. Others will be able to do this with less personal perspective. However, it was in the enthusiasm engendered by such efforts that it became my happy privilege to plot the present “home” of the College when a new building was being erected across the street. In the Fall of 1958 the present quarters were occupied.

The plans gave expression to what was considered basically essential and desirable to support the various efforts for attaining the objectives of the College. It was felt that the Central Office of the American College of Dentists should be in keeping with the high
character of the organization it represented—impressive and geared to service. Modern time-saving equipment to keep abreast of developments and efficiency in performance were considered essential. A primary objective had to be the development of an efficient office to carry on the routine procedures of the College. Future needs and possibilities also were given due consideration.

As these basic principles were being considered, some of the more detailed problems asserted themselves:

Facilities for holding conferences and committee meetings in the Central Office.

The setting up of an accurate record system, not only as related to financial matters, but also as related to many other details such as nominations and membership matters.

Accurate filing systems needed to be set up and expansion provided for future years.
Storage facilities needed to be provided for books and publications, the numerous pamphlets available and in process, and the archive material already in substantial amount.

Development of a system for making readily available the current and accumulated material pertaining to the various committee studies and varied areas of interest seemed important.

Consideration was given also to the desirability of making the records of the College readily accessible to future office personnel.

The following picture story attempts to tell you how we have approached this task.

The Central Office of the American College of Dentists is located at 4236 Lindell Boulevard, which is the main east-west thoroughfare of the City of St. Louis. The location is in the mid-town area of the city, easily accessible to all transportation and hotels. The College is located on the fourth floor of the newly built fireproof and air-conditioned building, and occupies the entire fourth floor front and wings on east and west, about 1,600 square feet (Fig. 1).

Figure 2. Hallway and Office Entrance.
Elevator service is supplied by an automatic self-service elevator. Figure 2 shows the elevator door and the entrance to the Office.

As you open the door and step in, you enter the central portion of the Office (Fig. 3). A large conference table, easily accommodating six or eight persons, occupies the central area to the north. This is where committee meetings and other conferences are held. These facilities can be extended to accommodate twice that number of persons by adding folding tables at one end.

Attention is called in Figure 3 to the cabinet installation on the north wall. Throughout the building the heating elements are installed at the floor. In order not to lose the space over the radiators and to provide maximum storage facilities, a super-structure was designed with three basic functions: 1) a grill front for the radiation with pleasing appearance; 2) storage facilities for pamphlets, brochures, etc., and 3) a work top to expedite segregation and collection of material. Such facilities have been developed throughout the Office area.
Figure 4 is a view of the same area looking toward the entrance. On the right of the door is a bookcase that contains a complete set of the Index to Dental Literature; a complete bound set of the Journal of the American College of Dentists; a complete bound set of the Journal of Dental Education; and a set of ten volumes on Dentistry as a Health Service. The availability of this material makes easy reference possible for committee discussions and conferences.

The cabinet to the left of the door in Figure 4 is a reconstructed cabinet to provide drawer storage space for blank membership and award certificates. The wall-panel nearby registers time, temperature, humidity and pressure; ornamental and serviceable, it is a relic from the Secretary's old office. Later reference will be made to the chart area and the tall bookcase shown on the right in this picture.

Looking to the right as you enter the office (Fig. 5), you see a large desk, ten feet long and five feet wide. The base of this desk was formed by bolting ten 30-inch metal filing cabinets together. The drawers of these cabinets are of several sizes and spotted for their usefulness as related to the various service areas. Provision is
Figure 5. South view of the large desk.

Figure 6. North view of the large desk.
made for three desk or leg spaces. A flat top, five by ten feet, covers the cabinet arrangement, with a depressed area on the far side to accommodate a typewriter. The upper surface and edges are covered with stippled green Formica.

Upon this flat surface a "pigeon hole" super-structure has been placed, again Formica covered—top surface and edge in stippled green and the "pigeon holes" and drawers in black. On one side, drawers have been made to fit into the pigeon holes (Fig. 5). On the other side (Fig. 6) they are open, providing storage and easy access to numerous special forms, pencils, and many other items, all within easy reach of the operator.

Figure 7 shows the end view of the desk with its "pigeon holes." A part of our record system consists of a large ledger used to record receipts and disbursements. The items are distributed in columns under various headings for budgetary purposes. This section of the desk provides facility for "spreading" the long pages of the ledger for these operations.

**Figure 7.** End view of the large desk.
Figure 8 shows the battery of files just opposite the large desk. These files contain the correspondence with Fellows of the College. A similar battery of files to the rear of this series, provides facilities for filing correspondence and material other than membership correspondence. Instead of setting up partitions between the several sections of space, cabinets or files have been placed back to back and thus form the dividers between areas and save space. These files are set on a 4-inch base, making possible the installation of a cove base (throughout the suite) which makes for easy floor care. One of the file drawers is open to show method. Each Fellow has
at least one folder, kept upright in a Pendafilex pocket. The storage facilities in the cabinets over the files are also shown. Cabinets were constructed over the files to make use of this space for storage.

Figure 9 shows the northeast end of the office. Here we have installed six double Kardex safe units, each housing two Kardex files. The space above the files is used for housing important material such as minutes and documents. In these files are kept the financial record of each Fellow, as well as certain pertinent information taken from his nomination record. Kardex color signals are used to designate the individual's special category, such as Army, Navy, Air Force, Veteran's Administration, or life membership status, etc. These safes are set on metal stands about twenty-two inches high. In order to make the most use of space, a louvered front with sliding doors was constructed to eliminate storage “eye-sore.” As a result, it is possible to store more than a year's supply of mailing envelopes for the Journal and other materials under the Kardex stands. The louvered arrangement (turned down) is necessary to provide air

Figure 9. The Kardex safe installation.
circulation for the heating elements against the wall in the back of the safes. Again, to further expedite this air circulation, a one-foot high louver arrangement was necessary near the ceiling. Louvers this time are turned upward to make material stored in this space invisible. Cabinets with sliding doors have been installed over the Kardex area with a drawer section immediately over the safes. These drawers contain the supply material used for this installation. This principle of having supplies close at hand has been observed throughout the office. The large "over safe" cabinets are used for storing archive material, such as copies of the *Journal*, old documents, etc. Each section has an index indicating what materials are housed there.

As we turn to the right from the Kardex safe area, we enter the record room (Fig. 10). Here again a large work-top for a desk has been provided by adding two 15-inch file cabinet units to the desk, and a flat Formica finished top to create a working surface seven and one-half feet long.
The real feature of this section of the Office is the filing system. All boxes are plainly labeled as to contents. A box that shows no label is empty. The flat boxes shown in the upper two shelves to the left and lower shelves to the right, contain reference material, such as reprints. The row of light colored vertical boxes contain papers presented before the College by officers of the College, such as presidents' addresses, inaugural addresses, and the like. In the next rows downward, will be found the following material: papers presented by other than officers; panel discussions; Convocation programs over the years; Section programs; miscellaneous material (bottom shelf). Each row of boxes is a different color.
To the right will be seen "stacks" of shelves. These shelves are made in units for easy moving if necessary. Units are all four feet wide and twenty-five and one-half inches deep, with a divider in the middle to provide shelf space from both sides. The lower unit is six shelves high and the upper one, two shelves high. They are mounted upon one another and side by side and held with a few screws. A facing panel covers the joints.

Something should be said about the box file used here (Fig. 11). These boxes were especially made in two sizes—one and one-half and
two inches in width. They were patterned after the Amberg transfer case, readily available on the market. We found that by horizontal filing instead of the usual vertical method, it was possible to have eight shelves instead of seven. The chief feature of the box is accessibility and visibility of the material, since the lid folds back and the flap downward. We have attempted, for convenience, to associate certain colors with certain activities and have used more than two dozen colors for these boxes in this way. For instance, socio-economic matters are filed in maroon colored boxes; light green for education; dark green for recruitment; black for journalism; dark blue for prevention, etc.

Looking from the record room back toward the Kardex safes (Fig. 12), attention is directed to the two five-drawer upright file cabinets. These files have a special function. Space is provided in them for the active committee material of the College. During the year material pertinent to each committee's interest is dropped into its proper slot in the file. When the committee plans its deliberations, this accumulated material is brought forth for consideration. This has been found a convenient method to accumulate material. After a committee has held its meeting, the material is filed in the box file, properly labeled, and placed in the shelf area designated for that particular activity.

Next to these cabinets is another two-section safe which houses our master membership list. Figure 13 shows a "page" of this. When a register of membership is contemplated, these "page" forms are photographed, reduced in size and printed. This saves type-setting costs. The cabinets over the safe house a supply of heavy envelopes of various sizes.

Figure 14 is a view of the battery of file cabinets used for other than membership correspondence. Overhead drawer section, and cabinets with sliding doors, offer more storage facilities. This corridor leads to a hall door, a second exit or entrance to the suite.

Returning now to the central area of the Office and looking westward from the desk and conference table, you see two tall cases (Fig. 15). In the one to the right will be found 36 large albums, fourteen and one-half inches high and twelve and one-half inches wide. In these albums interesting historic material is being assembled. (Several of these albums are shown open in Figure 16.) The headings under which this is being done are these:
Figure 13. A “page” of the membership file from which the register is developed.
The American College of Dentists—
A photographic review of organ-
zers, founders, and Board of Re-
gents
Nomination to Fellowship
Ceremonial Procedure
Convocation Programs
Fellowships Conferred
Sections of the College
Awards by the College
ACD Lecturers and Lectures
Fellowships and Grants-in-Aid
Books (by the College)
The Journal of the American
College of Dentists
The ACD Reporter
Pamphlets and Brochures of the Col-
lege
Committee Activities
Dental Education
Dental Research

Figure 14. Corridor leading to hallway.
FIGURE 15. The west view.

FIGURE 16. Historic Albums.
The large bookcase in the center of Figure 15 contains books authored by Fellows of the College. We are glad to receive these from the authors. The collection is increasing month by month. The large book in the center of the case is a complete record of the 1959 New York Convocation of the College, when the College was host to the American Dental Association and the Federation Dentaire Internationale in commemorating the Centennial of the American Dental Association.

Figure 17 is a close-up of the book, and Figure 18 is the book open showing the assembly and the Convocation speaker, the Honorable Arthur S. Flemming, then Secretary of the Department of Health, Education, and Welfare of the United States. Only three volumes were prepared. One copy was presented to the American Dental Association; one to the Federation Dentaire Internationale; and the third was one retained for the archives of the American College of Dentists.

Looking back to Figure 15, between the two book cases is the entrance to the Secretary’s office. Figures 19 and 20 are interior views of this office. Again, bookcases house important volumes of various kinds. In the cabinets under the window shelf on the right (Fig. 19) periodical dental literature finds its filing place.

Figure 15 also shows a corridor to the left. This hallway leads to another record room and the work shop. However, the walls of this corridor provide facilities for some special features.

An eight-inch deep cabinet has been set into a wall space and into the several sections of this cabinet, brackets have been fashioned on which frames containing charts are hung and used for demonstration purposes from time to time. As shown in Figure 21, these wings swing out like the leaves of a book. The large chart shown on the left projects the various facets of dentistry as a health service and indicates on the far margin, the various organizations that are or should be interested in the associated problems. This chart is in reality the work chart of the College.

Figures 22-26 show more of these charts, and the outlines developed in the process of considering the many problems associated with dental health service. Figure 26 shows a chart in the process of development. On it we hope to project the recommendations of the Commission on the Survey of Dentistry, 1960.
Figure 17. The Centennial Book.

Figure 18. Centennial Book open.

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Figure 19. The Secretary's office.

Figure 20. The Secretary's office.
Figure 21. Dentistry as a Health Service.
Passing down the corridor and looking back, Figure 27 shows several views of the smaller wings. The lower one offers the background for a lecture or indoctrination on the importance of committee work. The columns support an over-structure which represents "Dentistry." The columns rest upon foundation stones, labeled by various terms that represent the facets of dentistry as a health service and areas of interest in committee studies. The story follows that if the foundation stones begin to weaken, the super-structure is in danger.

Behind this chart are other wings outlining the procedure for each committee. Here is a typical example:

<table>
<thead>
<tr>
<th>An outline of the objectives of the committee</th>
<th>Areas to be studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach to studies to be made</td>
<td>Evaluation and basis of appraisal</td>
</tr>
<tr>
<td>Through initial research</td>
<td>Ethical standards</td>
</tr>
<tr>
<td>Through questionnaires</td>
<td>Patient's interest and well-being</td>
</tr>
<tr>
<td>Through gathering of available material</td>
<td>Community interest</td>
</tr>
<tr>
<td>Through preparation of new material</td>
<td>Profession's interest</td>
</tr>
<tr>
<td></td>
<td>Conclusions and recommendations</td>
</tr>
<tr>
<td></td>
<td>Attainment plans</td>
</tr>
<tr>
<td></td>
<td>Projection and support</td>
</tr>
</tbody>
</table>

The upper chart in Figure 27 shows some of the areas of special interest at present. Other charts outline additional activities—publications, pamphlets, brochures, etc.

The central area charts (Fig. 21) have to do with eligibility to membership in the College and the conferring of Fellowship, as well as the symbols used in ceremonial procedures. Figures 28 and 29 show some of them.

On other "wings" will be found the various award certificates given by the College in recognition of unusual services or attainments. They are projected here to acquaint the membership with them. Invitations to Fellowship—honorary and active—are in themselves recognition of meritorious service.

Two special awards are provided (Figs. 30-31):

1. The William John Gies Award for Fellows of the College in recognition of leadership and unusual services to the profession; and
2. The Award of Merit for persons other than Fellows, for distinguished services to the profession.
Figure 22. The profession’s responsibilities to the public and the public’s responsibilities to the profession.
Figure 23. The profession's responsibilities to its members.
Figure 24. Various relationships.
Figure 25. Principles of Conduct.
Figure 26. Responsibilities of the individual. A chart in development.
Figure 27. Some of the activities.
The College presents awards to the winners and participants in the Writing Award Competition, under the direction and supervision of the Committee on Journalism. There are two of them:

1. The certificate for the national winner (Fig. 32), who also receives a check for $500.00; and
2. The school winner certificate (Fig. 33), issued to each school winner. The runner-up receives a check for $100.00 in addition to his school winner certificate.

The purpose of the Competition is to stimulate interest in writing among the senior dental students.

While mentioning the awards granted by the College, reference should also be made to the Fellowship Awards that are available. There are two of these: The Teacher Training Fellowship and the Exchange Fellowship.

The Teacher Training Fellowship is intended as an aid to the person who wishes to teach or who wishes to acquire new knowledge in teaching methods. It has an annual stipend of $2,500.

The Exchange Fellowship is intended as a means of exchanging knowledge between countries or sections. It is based on a travel and expense allowance plan.

There is also a provision, known as the William John Gies Travel
American College of Dentists

PRESENTS
THE NATIONAL AWARD TO
FOR HIS PAPER

WHICH EXEMPLIFIED THE QUALITIES OF DENTAL PERIODICAL JOURNALISM AND WAS SELECTED FIRST IN COMPETITION AMONG GRADUATING STUDENTS IN THE UNITED STATES AND CANADA

President

Secretary

Figure 32. The National Winner Award Certificate.

American College of Dentists

PRESENTS
THIS AWARD TO
FOR HIS PAPER

WHICH EXEMPLIFIED THE QUALITIES OF DENTAL PERIODICAL JOURNALISM AND WAS ADJUDGED THE BEST FROM HIS SCHOOL

President

Secretary

Figure 33. The School Winner Award Certificate.
Fund, which provides limited travel funds for persons doing research, whose work may be enhanced by visiting other research facilities.

Another provision, the William John Gies Grant-in-Aid Fund, is designed to meet an unusual emergency in research laboratories. These latter two funds are under the auspices of the Committee on Research.

Special attention is called to the bookplate shown in Figure 34. This bookplate, in color, and properly inscribed with the name of the Fellow and the date of his death, is pasted on the inside cover of a book that is placed in the library of the deceased Fellow’s Alma Mater at the time of his death. The book so placed is a fitting memorial in his memory and cherished by his family, his friends, and his Alma Mater.

On the north wall of the corridor being explained there is being developed a gallery of photographs of contributors to dental progress. Though only just begun, more than 60 photographs have been placed on this wall. Figure 35 shows a part of these. Proceeding farther along this corridor, we find on the left and straight ahead, some closet arrangements as well as overhead storage facilities.

Turning to the right, we enter a long corridor with shelf arrangements on both sides (Fig. 36). This is called the “Nominations Room,” for in this area is stored everything dealing with nominations. In the flat boxes near the bottom will be found our supply of nomination blanks, censor’s work sheets, consultant’s report sheets, etc. The rows of speckled boxes contain all the original nominations that have had the attention of the Board of Censors over the years, alphabetically arranged. Figure 37 shows one of these boxes open, indicating individual envelopes used for each nomination and the accessibility offered by this type of box file.

Turning to the left from the corridor, you enter the workshop. This space, while only eight feet by twelve feet in size, contains most of the major machinery used in the office—postage meter, addressograph, mimeograph and copying machine (Figs. 38-39). Again, supplies are near at hand in the drawers or cabinets beneath the table surface, on the wall, or in the drawer and cabinet section on the opposite side. In an overhead space above the work bench is space for the storage of the shipping cases used for our annual meeting.
THIS BOOK
IS PLACED IN THIS LIBRARY
IN MEMORY OF

WHO WAS A FELLOW OF THE
AMERICAN COLLEGE OF DENTISTS
AT THE TIME OF HIS DEATH

Figure 34. The Bookplate.

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Figure 35. Contributors to dental progress.
Figure 36. The Nominations Room.
Figure 37. The box file open.
Figure 38. The workshop (south wall).

Figure 39. The workshop—west and north (right).
In a busy area like the workshop, table top space is always needed. Some such additional space is acquired by providing a drop-down shelf (Figs. 40-41). It will also be noted that use has been made of a shallow space on the wall behind this shelf space—a good place for small items—ink, trays, glasses, etc. A small wash basin is built in the corner to the right.

In the area to the left of the entrance to the room (not shown) space is provided for a refrigerator and a cabinet arrangement for the addressograph plates and other supplies. Figure 41 shows the cabinets closed and the shelf top down, providing additional table-top area.

The drawer and cabinet arrangement shown in Figure 39 forms the north wall of the workshop, and with the cabinet arrangement shown in Figure 15, left, form the dividing line between two areas.

Storage space is always at a premium and sometimes some things are difficult to get “out of sight.” Card boards of various sizes seem to be one of these. Figure 42 shows an approach to this problem by placing a false back in two cabinets, thus providing card storage space above, as well as a space for card tables and other folding tables below.

Every well organized establishment should be prepared to meet emergency problems as they arise and even in the College many mechanical problems present themselves from time to time. Thus, it was felt that tools and supplies were desirable. Figure 43 shows how both these needs have been provided. Two shallow cabinets supply the needs—tools above and supplies in suspended jars below.

This, then, is the story of your headquarters in St. Louis. It was planned and developed to do the job the College had years ago chosen to do. Every effort has been made to not only provide for the present, but, as far as possible, to plan for the future by recording our experiences in a way that ready reference to them will provide a sound foundation for future planning.
Figure 40. East end of workshop, cabinets, open, table-top up.
Figure 41. Same as Figure 40, with shelf down and cabinets closed.
Figure 42. Storage for tables and cardboard.
**Figure 43.** Tool chest and supplies.
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CALENDAR OF MEETINGS

CONVOCATIONS

October 15, 1961, Philadelphia
October 28, 1962, Miami Beach
October 13, 1963, Atlantic City
November 8, 1964, San Francisco
November 7, 1965, Las Vegas