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Objects

The American College of Dentists was established to promote the ideals of the dental profession; to advance the standards of efficiency of dentistry; to stimulate graduate study and effort by dentists; to confer Fellowship in recognition of meritorious achievement, especially in dental science, art, education and literature; and to improve public understanding and appreciation of oral health service.

Teacher Training Fellowship

Recognizing the need for more dental teachers and their proper training in educational procedures, the Board of Regents in 1951 established a fellowship program for the training of teachers of dentistry. The fellowship grant covers a period of one year in the amount of $2500.

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Because of its interest in research, the Board of Regents in 1951 established the following grant-in-aid funds:

(a) The William J. Gies Travel Fund, through which grants are made to research workers "to enable them to visit the laboratories of other investigators to obtain first hand information on associated problems."

(b) Research Fund for Emergencies, available for aid in the event of loss of equipment, animal colonies, needed repair and the like.

For application or further information apply to the Secretary, Dr. O. W. Brandhorst, 4221 Lindell Boulevard, St. Louis 8, Missouri.

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CALENDAR OF MEETINGS

CONVOCATIONS

September 30, 1956, Atlantic City, N. J.

November 3, 1957, Miami, Fla.

November 9, 1958, Dallas, Texas

September 20, 1959, New York, N. Y.

BOARD OF REGENTS

September 29 and October 1, 1956,
Atlantic City, N. J.

Federation Dentaire Internationale

As a Fellow of the American College of Dentists, you are invited to join the outstanding international organization in dentistry, the Federation Dentaire Internationale, which is supported by the American Dental Association.

You can support the Federation by becoming a *supporting member* for annual dues of $10.00. You will receive your membership card, a subscription to the International Dental Journal, a quarterly News Letter and reduced fees for official international meetings. More importantly, your membership will do much to strengthen dentistry in the international field. The application blank below should be sent to Dr. Obed H. Moen, U. S. National Treasurer for F.D.I., Watertown, Wisconsin, with your remittance of $10.00.

You may also be interested in the annual meeting of the Federation at the Dental Congress in Rome, Italy, September 7 to 14, 1957.

APPLICATION FOR MEMBERSHIP

I wish to become a Supporting Member of the Federation Dentaire Internationale and subscribe to the International Dental Journal.

Name .....

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I am a member of the American Dental Association.

I enclose $10.00 for Supporting Membership and subscription to the International Journal.

Signature .....

Please complete and return with your remittance to Obed H. Moen, U. S. F.D.I. Treasurer, Watertown, Wisconsin, U.S.A.

MINUTES OF THE MEETING OF THE BOARD OF REGENTS, FEBRUARY 5, 1956

(Abbreviated)

The Board of Regents of the American College of Dentists met in the Conrad Hilton Hotel, Chicago, Illinois, Sunday, February 5, 1956, convening at 9:00 a.m. Thirteen members were present. Dr. Pruden presided. Minutes of the San Francisco meeting were approved. Brief reports from officers and regents were received. The Secretary reported a total membership of 2214. Ten deaths since the San Francisco meeting were reported. The resignation of Dr. Fred A. Richmond of Kansas City, Kansas was accepted.

The Treasurer reported a balance in the general fund, as of January 31, 1956, of $25,405.43; H. Edmund Friesell Endowment Fund, total, $3915.05; Centennial Fund, $4,000.00; Government bonds, $38,000.00. Total assets $71,322.48.

The Board approved the recommendation of the Committee on Journalism for the establishment of a Writing Contest, with an annual award of $500.00 for the winner.

The Board adjourned at noon to participate in the Illinois Section luncheon meeting and reconvened at 2:00 o'clock.

Various matters of new business were discussed. The Board adopted several statements relating to the giving of courses by Fellows of the College in violation of the constitution and impropriety in the use of photographs, which were ordered sent to the membership.

The petition of the Fellows in West Virginia for recognition as a Section was granted.

Meeting adjourned at 5:50 p.m.

O. W. BRANDHORST, *Secretary*

The Dentist and Community Interest*

O. W. BRANDHORST**
St. Louis, Mo.

IT WAS IN 1868 IN the State of New York that the first dental license law was enacted.

This was an event of great importance. It recognized the dental profession as a public servant in health, and granted to the dentist certain rights that only the importance of health and human welfare could justify. Logically, public interest was the motivating factor that brought this about.

The granting of this privilege, however, carried with it certain responsibilities and obligations. Responsibilities and obligations that are as demanding today as they were in the earlier days. Over the years, methodology and technology have changed crude efforts to broader services and greater knowledge has made possible greater achievements. These advances have supported the public trust placed in the dental profession, but have not reduced our responsibilities. Rather, they have expanded what might be called the human rights and expectations in the field of dental health service.

History reveals that dentistry, though perhaps in very crude form, like other services, was practised even among the ancient tribes.

The year 1840 has been designated as the beginning of Dentistry as a profession, because that year marks the establishment of the first dental school, the first dental journal and the first dental organization. The year 1840 was a period of time when a group of sincere and far-sighted men, led by Hayden and Harris, took cognizance of dentistry's potentials in the light of public service and set about to strengthen its foundation, through education, formal and informal, and organization that it might better serve the public.

Comparison of the requirements for formal education at the first

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* Presented at the Meeting of the Texas Section, American College of Dentists, Mineral Wells, Texas, December 10, 1955.

** Secretary of the American College of Dentists.

dental school in 1840 and dental schools today shows a broad change from the two relatively short terms of formal education, with a good English education as an entrance requirement and some credit for experience as an apprentice in a dental office, to the present four years in dental training after a minimum of two years of college and submission to aptitude tests. This should not be interpreted as a weak educational program for dentistry in those early days, for dentistry's program was not weak when evaluated on the basis of over-all advancement as of that time. Rather it points up logical changes and advancement made possible and necessary by the great increase in our fund of knowledge, not only in dentistry but all other areas as well.

Dr. J. Ben Robinson, Dean of the School of Dentistry at West Virginia University, and a recognized student of dental history, points this out quite clearly in the following statement:[1]

> "The standards fixed for admission to the study of dentistry in 1840 were practically the same as the standards then required for admission to the study of medicine. The men who established the Baltimore College of Dental Surgery were idealists and would not approve standards of scholarship for the study of dentistry below those fixed for the study of medicine. The requirements for admission to medical or dental college were referred to as 'a good English education.'
>
> "Standards in dental education in 1840 were, for those times, as high as standards in dental education in 1955, for the time in which we now live. Changes that have come about must be regarded as growth in scientific knowledge and performance skills and not improvements in basic principles."

He points out further that "no school for training of teachers existed in America before 1839. The first Teacher's College, or Normal School, established in America was founded in 1839 at Lexington, Mass."

That there has been growth in scientific knowledge and in the performance of skills, no one will deny and I believe that generally we have used this information for the benefit of the public and to our own credit.

The progress we have made was well summarized by Dean Willard C. Fleming, in his Presidential Address before the American Association of Dental Schools, when he referred to the objectives of the profession along the road we have traveled.[2]

"*The first objective was the relief of pain.* This could be accom-

plished with no preparatory requirements, except possibly a strong right arm.

"*The second objective* was that of restoration of teeth and parts of teeth. Educational requirements were satisfied by the apprenticeship method of education similar to those used today in the arts and crafts.

"*The third objective* was the elimination of infection, and was influenced by the discovery of the relationship of the diseases of the teeth and oral cavity to the body. One might designate this as the focal infection period. With this new objective, the apprenticeship method of education no longer sufficed; education on the college level and in the health sciences was instituted.

"*The fourth objective,* the control of dental diseases, represents the present era in the practice of dentistry. This began in the late "teens" and early "twenties," and is associated with the slogans, "a clean tooth does not decay," and "see your dentist twice a year." Many of us, active in the profession today, received our education and have practiced in this period. Educational requirements were increased to include a better understanding of the biological framework of the medical sciences, and a broader background of the humanities and social and economic problems. Health sciences occupied a more important place in this curriculum. Dental education was lengthened by increased pre-professional preparation. Clinical investigation became a part of dental education, and some fundamental research began to appear.

"*The fifth objective* is located along the road to the future and can be labeled as the period of prevention. Educational requirements must include a greatly expanded program of biological and medical sciences, research and stimulation of the public health approach to our dental problems."

The road we have traveled has been a rugged one but we have been sustained by our desire to serve humanity. Likewise, the road ahead will offer many hazards and the success with which we will overcome these will depend upon the willingness of the profession to shoulder its full responsibilities in a period of time when new facts and fancies threaten to overwhelm us. We must not only evaluate these new facts and fancies as they pertain to dental health service but as men and women of broad training and understanding

we must fit them into new patterns and development in the changing ideologies, for the over-all good of humanity.

In an address delivered before the convocation of the American College of Dentists, Dr. Lloyd E. Blauch, Chief for Education in the Health Professions, Department of Health, Education and Welfare, Washington, D. C., under the title *"The Professional Man in Our Times"* outlines not only what is expected of the professional man today, but points out also present conditions that make their demand upon him and his services. Permit me to quote from his address.[3]

"The professional man is distinguished by several marked characteristics, among which I would name six. (1) He has acquired a specialized intellectual technique which enables him to perform a particular service. (2) He uses independent judgment in his service and assumes large personal responsibility for it. (3) He associates with others engaged in the same type of service; from them he draws inspiration and acquires new ways of performing his services; to them he freely contributes his ideas, his discoveries, and his inventions. (4) From an intellectual point of view, he is considerably above the average of men. (5) His actions tend to be regulated in the public interest either through his own group, or through the State, or through both. (6) And finally, he is a 'dedicated' man. He has been thoroughly indoctrinated in his responsibility to those who commit their problems to him. In him is placed a great trust to act always in the interest of those he serves for the common good.

"Do I hear you say that not all who call themselves professionals possess all these six characteristics? If this is so, I must say that they are not truly professional. Nothing less can be the ideal for any group that aspires to be called a profession.

"Our Times. Let us now look for a moment to our times. What are some of their characteristics that are especially pertinent to the interests of professional men? I shall indicate only six.

"First, we live in an age of great wealth, particularly in our own country; we have an abundance of material things which has enabled us to support and develop the professions to an extent that was never before possible. The opportunity of the professional man to gain a livelihood from his work is reasonably well assured.

"Second, in our times knowledge is increasing at an accelerating rate. The scientific and theoretical foundations of the professions are being well developed and the promise for the future is large. The professional man in our day lives in what should be for him an exciting time.

"Third, we note that in our times there appears to be a tendency toward collective action in social and economic affairs. You will understand that in making this observation I am acting as a reporter, not as an advocate. If one may conclude from the trends of events, it seems likely that as the population increases, as social and economic life becomes more complex, and as individuals come to organize themselves into associations, we may see collective action applied to an increasing number of activities.

"In our own country some aspects of our life have been under collective con-

trol from the time that organized government was established, and slowly we have placed other aspects—one after another—under such control. The result to date is that we have a mixed economy with considerable emphasis on individual initiative and freedom of action. What the future may have in store for us with respect to this matter is not altogether clear at the moment, but I entertain the hope that we shall act intelligently in the future as we have on most occasions in the past and that we shall usually make the right decisions. This tendency to collective action nevertheless merits the most careful thought on the part of all of us. Professional men as well as all others are affected by it; they will have to participate in determining the direction and extent to which it will go.

"*Fourth,* our country, willy nilly, is now deeply involved in international affairs. Our role in this matter has been forced upon us by the swift rush of events. And we are not altogether happy about it. Indeed we are much troubled by the responsibility that is now ours. Today we are pouring out our treasure in many billions of dollars both to develop and maintain military strength among the free nations and to help the half-starved, and disease-ridden people of the world to a better standard of living. In all these developments professional men have a large share and a large stake.

"*A fifth* characteristic of our times is a terrific clash of ideologies. A few days ago I came upon a new book entitled 'European Ideologies—A Survey of 20th Century Political Ideas.' Here are explained the systems of fascism, nazism, anarchism, agrarianism, socialism, zionism, communism, phalangism, and a number of other idea-systems, all of which now have numerous devotees. I believe that we shall have to agree with the editor of the book, who observes that 'the United States in its world orientation can no longer fulfill its responsibilities without a clear perception of the idea-forces that are moving or controlling other peoples.'

"*The sixth* and last of the characteristics of our times that I want to mention here is the curse of war. Years ago as I studied history and learned about the great military conflicts of the past, I thought of them as something far away both in time and in place. They seemed to belong to the years gone by, and the future would have none. This was, of course, a very naive notion. I have lived long enough to learn otherwise."

Dr. Blauch then continues by listing some of the concerns of the professional man. May I summarize them for you?

Group 1. Concerns directly related to the professional man himself.

a. The desire to become a master in his profession.
b. Opportunity for continuing educational advantages.
c. Opportunity for interchange of ideas and experiences with confreres. He says that our times not only make the professional man's improvements possible; they make it absolutely necessary and obligatory upon him.
d. Concern for his economic security.

Group 2. Concerns for his profession.

a. Who shall be admitted to its ranks? All men who are proud of their profession have a strong desire to leave it to worthy successors.

b. Concern about their school, which serves as a gateway to the profession—carries on research and keeps profession vitalized.
c. Concern about research and creative work in the profession, providing a fresh supply of facts that prevent degeneration into mere routine.
d. The development of a fine body of professional literature, with no trade secrets.

Group 3. The concern for the general welfare, for humanity as a whole.

Quoting Dr. Blauch:

"The professional man is a leading citizen; he can be no less and serve in his profession. I assume it is not necessary to argue this proposition. I merely assert that the professional man does have special responsibilities as a member citizen of his community and his Nation. As one to whom society has given much by way of education, opportunity, prestige, and honor, he owes a special obligation as a citizen leader. The smaller and the larger communities turn to those of their members who carry heavy responsibilities in business and professional life to lead them in the conduct of their social, civic, and cultural life. These men are expected to serve on municipal councils and boards and in other governmental elective and appointive offices. They serve on community chest boards, boards of education, health councils, boards of cooperatives, church boards, and public improvement and planning committees, all of which are devoted to promotion of the public welfare. . . .

"If professional men withdrew from civic duties, who would be left to deal with the great social, economic, and moral issues that affect all of us? Are these matters to be left to the people of lesser educational attainment and understanding? That might easily occur as increasing numbers of our superior people engage in highly specialized callings such as the professions. Such a course would certainly have most unfortunate results.

"The great problem that confronts us today is not how can we obtain improved professional service, important as that may be. Rather, it is, how can we manage to survive in this modern age of overwhelming social and economic problems, of conflicting ideologies, of increasingly deadly and devastating wars? These are the things to which all intelligent people must give attention. We need to cultivate all our brains to deal with them. Professional people cannot escape responsibility; they must help to carry the burden in these more general problems. They will be derelict indeed if they do not inform themselves on these larger issues, arrive at sound judgments concerning them, and participate in the formation of public policy for dealing with them."

It is evident then that the dentist has a greater responsibility in the community than the rendering of dental services, even though this is the area in which he is specifically trained.

The dentist, like other health servants, is by training a person who has a sympathetic feeling for any one suffering from ill health, be it general or oral, and a truly professional man will be interested in the over-all well-being of his patient and the community. His should be a human relationship that transcends restricted interests and selfish motives.

Dental educators and practitioners as well, are aware of this increased responsibility and are attempting to make the young graduate aware of it. While the aptitude tests are primarily designed to give indication of an applicant's scholastic and technical abilities, they also give opportunity through personal contact and interview, to place an estimate on the fitness of the individual for a professional career and public service. Let me quote from an article by B. Frank Gillette, who directed the Curriculum Survey of the College of Dentistry, University of California, a short time ago. In his study, Dr. Gillette was supported by members of the faculty and alumni of the School and his summary, therefore, can be considered as an indication of the awareness of the educator and the practitioner of the responsibilities that rest upon the dental practitioner of today in fields other than those associated with his technical skills.

Dr. Gillette's article appears in the December, 1954 number of the JOURNAL OF THE AMERICAN COLLEGE OF DENTISTS, from which I quote.[4]

"In the Curriculum Survey, the upshot of the preliminary investigations was a faculty decision to recognize the importance of 'non-technical' qualities by including them in an over-all statement of objectives for the undergraduate program. This statement of objectives—which forms the goals toward which selection of students, the curriculum, and the whole instructional program lead, describes the dentist as a person who must play two roles: (1) the dentist as a practitioner of a special health service (clinical dentistry); and (2) the dentist as a member of a health profession, a citizen, and a person. Admittedly, the two roles overlap and interact with each other on many occasions. Setting them down as two separate roles has virtue chiefly in giving proper attention to those qualities in Role 2 which too often are taken for granted, ignored, or considered to be somebody else's business.

"The faculty of California's College of Dentistry has now given its endorsement to this statement of objectives. The 'means,' however, are often harder to establish than the 'ends.' To illustrate the size of the undertaking which lies ahead, the major headings under role 2 are listed below:

1. Pride in dentistry
2. Relations with fellow dentists
3. Professional support and leadership
4. Conduct in public
5. Local civic welfare
6. National citizenship
7. Physical well-being
8. Mental well-being
9. Morals
10. Culture and breadth
11. Social skills
12. Communicative skills

13. Intellectual vigor and maturity
14. Work habits

"These fourteen headings suggest the qualities possessed by an ideal dentist, recognizing individual differences among men and not subscribing to a stereotyped ideal in the process, of course. Considerable detail must be provided under those headings before a full understanding of the goal is possible.

"How can such dentists be produced? The well-rounded person depicted by our dental statesmen as an ideal toward which we should aspire could probably trace his breadth to a number of sources. He would be the product of an educational system which included these foundational studies:

1. The study of culture—the social sciences, not omitting anthropology and sociology
2. The study of human behavior—the biological and psychological sciences
3. The study of man's expression—the fine arts
4. The study of the universe and particularly the earth—the physical and biological sciences
5. The study of man's goals and values, his objects of allegiance—philosophy and religion.

"Such general education for the well-rounded dentist is no more ambitious than that regarded as so desirable for all men who have the capacity to undertake it. This is a view of what is so often called "general" or "liberal" education. How poorly such a goal has been realized for the general citizenry, we need not admit in apology, but somehow we expect fewer deficiencies among professional men and women. The average layman, too, expects that his dentist, physician, teacher, lawyer, and minister will be broadly educated in the above foundations —albeit to varying degrees in the separate areas."

From these several quotations it is evident that much more is expected of the dentist today than in times past. There is also evidence that this is being recognized and that the profession is rising to the occasion.

In this era of rapidly moving events, one must be prepared to meet each challenge with determination to guide it for the best interest of humanity.

One of the very important things that we as professional persons must do is to broaden our understanding of present day trends in order that we may better recognize our responsibilities toward our present way of life.

We need to cultivate the broadest possible understanding in our relations with the public whom we are trained to serve, so that we may serve them as human beings worthy of every consideration.

We must take leadership in matters of health for which we are especially trained. The dentist of today is an important member of a health profession and should recognize his responsibility in community health matters.

We need to develop an effective dental educational program to disseminate authentic information on oral health to the public, giving proper value to it.

As one interested in community health, the dentist should support preventive and control measures and urge their expanded use.

We need to find ways and means for extending our services to greater numbers and we should lend a willing ear to any request for suggestions in solving the dental health problems. We should know better than any other group the problems associated with dental care. Community dental health should be the dental profession's basic concern.

The above suggestions are closely related to the health field and the dentist's technical training, and are logical areas in which he should show interest and leadership. But there are many other community problems and activities not so closely related to the health field that should receive the individual dentist's support and cooperation.

General community welfare should be the objective of every citizen and as we as dentists develop this human interest and contribute our mite and our talents toward this end, an appreciating citizenry will share its happiness with us.

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1. Personal correspondence with Dr. J. Ben Robinson, Dean, School of Dentistry, University of West Virginia, Morgantown, W. Va.

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3. Lloyd E. Blauch: The Professional Man in Our Times. Journal of the American College of Dentists, Vol. 18: No. 4, p.216-227, 1951.

4. B. Frank Gillette: The Complete Education of Dentists. Journal of the American College of Dentists, Vol. 21: No. 4, p.328-334, 1954.

The Role of the Dentist in Public Health*

HENRY A. HOLLE, M.D.**

IN ANY DISCUSSION, it is basic that the participants define their terms so that they will understand each other. All of us have seen men lose their effectiveness, their ability to reason, and even their tempers while discussing a subject which meant something different to each of them. There is evidence that this situation often obtains when the term "public health" is used.

It does not improve matters when even the so called experts do not tell the same story. While I cannot state categorically that this happens in dentistry, I am willing to suggest it because certainly it occurs in my profession of medicine. Within the past month, I had occasion to discuss the term, public health, with others who were considered specialists in that field; and, as usual, we found it necessary to define our terms as we proceeded.

For our purpose today, therefore, I should like, with your permission, to disregard orthodox definitions and to talk about the subject in such simple terms that there cannot be any misunderstanding. We can all agree that good health is extremely valuable and that the public should have it. It follows, therefore, that good public health is desirable and that efforts to improve the public health are laudable. If this is true of health in general, it is also true of dental health.

I am one who believes that the free enterprise system has made this country great and that we should keep it that way, especially in the field of health. Moreover, I am old fashioned enough to insist that the family physician and the family dentist, when available, are still the greatest pillars of strength in family health maintenance. What I am saying at the outset, therefore, is that the role of the dentist in the dental health portion of a public health program is the

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* Presented at the Meeting of the Texas Section, American College of Dentists, Mineral Wells, Texas, December 10, 1955.

** Commissioner of Health, State Department of Health, Austin, Texas.

principal or key role. He is the main actor and he can make or break the show.

Why We Need a Dental Health Program

If everyone has access to his family dentist, it would be logical to ask why a need exists for a dental health program. A partial answer to this question may be found in the following points:

1. Dental services are not universally available to all persons who need them.

2. Many persons who need dental care do not seek it, even when it is available. They must be reminded of its importance and coaxed to get it. This requires constant public health education.

3. Good dental care in children which is vital to good dental health in adults, is still *relatively* a scarce commodity. To put it another way, too many children are not receiving adequate dental care.

4. Many communities have not taken advantage of the reduction of dental caries in children which may be achieved by adjusting the concentration of the fluoride ion in the public water supply.

If none of these conditions exists in a community, a dental health program would be superfluous, but if any does exist, we as professional men should take cognizance of them.

Need for Survey

Before a program of action can be planned, a survey of the problem as it exists is fundamental. Members of your profession have made available such tools as the DMF index for dental caries. This objective measure when used in comparable age groups at different times in a community is a valuable indicator of changes in prevalence of dental caries. After a DMF baseline has been established, future readings will serve to record progress in the attack on this problem.

If it is found that dental services are inadequate for the population to be served, the program will, of necessity, include efforts to interest one or more competent dentists to locate in the area. This is especially true in connection with the need for services in children. Additional resources such as might be provided by voluntary agen-

cies, if suitably mobilized will render valuable assistance in connection with the total program.

Community Acceptance

Any public health program including its dental component will fall flat unless the community recognizes the need for it and wants it in a positive way. Normally, the community will look to its professional men for counsel and leadership, and their attitude on public health activities holds the veto power over whether or not the program will go forward. These decisions should have been made and well understood before the program is launched. Unless the local dental profession has already indicated its willingness to make the required sacrifices, someone will get the signals mixed and the usual misunderstandings will retard or even kill the program. When this occurs, scars will make future cooperation difficult between very important people in the community.

What the Program Should Provide

In brief, the component parts of a dental program should strive to correct the deficiencies which exist in the dental health of the community. A few basic essentials would include:

1. The availability of adequate professional dental services for the population of the area.
2. An effective program in dental health education, especially in the schools.
3. The availability of dental services for the indigent, especially for children.
4. Adjustment of the fluoride ion in the public water supply. It may not be possible to include all of these points in every program.

Availability of Dentists

It is obvious that much will depend upon the availability of professional dental personnel in the community. It is academic to speak of adequate services for children or a public program of dental care for the needy when an insufficient number of dentists is available to serve even those who wish to purchase dental care.

As is the case in medicine, the equitable distribution of professional talent in the field of dentistry is never completely automatic;

but I think we can agree that a concerted effort on the part of the State Dental Association should prove helpful in increasing the dental resources in areas where they are most needed. The availability of ancillary personnel, such as dental assistants, and of multiple office equipment which greatly increases the effectiveness of a dentist should be taken into consideration in evaluating the total dental resources; but in the final analysis, the availability of the dentist himself is the key to the situation regarding resources.

Dental Health Education

Public health education is one of the most valuable tools we possess. This is especially true in children. The Texas State Department of Health takes pardonable pride in its rather unusual "puppet show" which has made a considerable impact on school-age youngsters in this State. The content and characters in these little shows are changed from time to time; and while it is difficult to measure the value of this educational program, not only on the individual child but upon the family, we have reason to believe that it is considerable.

It has been stated that charity begins at home. Perhaps we should add that education in dental health begins in the office of the dentist. He has a captive audience in that the patient can't talk with his mouth wide open, and any worthwhile message the doctor might wish to get across has a good chance to be heard!

It would be superfluous to suggest before this group that the content of public health educational material should be based on scientific fact and not on unsupported opinion; but the fact remains that those in possession of scientific truth, too often do not realize how many people fail to utilize this truth to their own advantage. Unfortunately, man is sometimes reluctant to think for himself; and, therefore, it is important to make sure that he understands exactly what he should do next. The practicing dentist who makes sure that each patient he sees knows what to do next about his teeth is making a substantial contribution to public health education through his daily contacts, especially among children and their parents.

Dental Services for Children

I hope you will pardon my returning to the subject of children

and the importance of good dental care during these formative years.

In the dim and distant recollection of my early youth, I recall that when things got bad enough, we were occasionally taken to the dentist. Sometimes it hurt, but sometimes I escaped through the leniency of the good doctor who would say, "Oh well, I suppose we could let it go. It's only a baby tooth." This expression is still heard today in the offices of some professional men with devastating effect. While I consider myself a layman in these matters, it still seems logical to me that each tooth is important to good health and is worth conserving, be it primary or permanent.

One gets the general impression that the practice of dentistry in children is less remunerative and more troublesome than in adults, because it is shunned by some men. In my judgment, this is unfortunate from the standpoint of public health. Good dentistry in children is more important than dentistry in adults when viewed from the public health angle. Could it be that our attitude toward children is a reflection upon our individual patience? I hasten to admit that it takes more than patience in the case of some of our modern uninhibited youngsters. It also takes endurance; but some of my friends in pediatrics tell me that it would be appropriate to paraphrase Shakespeare by saying: "The fault, dear doctor, lies not in our 'kids' but in ourselves, that we are underlings in the struggle." If somehow we could take a leaf from this book and elevate the true value of dentistry for children in the minds of men, even the economic disadvantages might disappear.

Services for the Indigent

The problem of dental services for the indigent must be faced squarely in each locality. In some states, mobile dental units have been placed into the field by official and other agencies. While these units have proven valuable in areas where dental resources were meager or non-existent, in my judgment, the need for dental services should be met locally without "calling the wagon" if at all possible.

It will bear repeating that the role of the local dentist in this program of actual services must be one of leadership and not one of reluctant acquiescence or mild lip service. Unless the community

needs are first surveyed and unless the proposed plan is understood by the local dentists, the program will not be successful. Unless the "ground rules," including those governing eligibility, referral and compensation are understood and agreed to, not only by the agencies sponsoring the program, but also by those who will be called upon to render the service, it will bog down and never get off the ground.

Fluoridation

I need not remind this audience that dental caries in children may be reduced by approximately 60 per cent in ten years through the fluoridation of the public water supply. This preventive measure will pay rich dividends if it is included in a community dental health program. The impact which a very small minority is able to make on an enlightened community through intense effort in opposing this project is astounding. Under such circumstances, it will take more than a resolution of endorsement in the dental society to bring about favorable community action.

While this discussion has been confined to a dental health program at the local level, the desirability of integrating it with the general program of the official health agency should be stressed.

At this point, I should like to say a word about this business of medicine or dentistry in government. I can recall that twenty-five years ago when I practiced as a small town physician, the term "State Medicine" was a sort of swear word with us. Now "Socialized Medicine" is the term which we sometimes use to express disapproval of a program which is distasteful to us. Undoubtedly, your profession has equally effective literary missiles in its arsenal.

I have previously referred to my own views concerning the free enterprise system. After more than six years of private practice and twenty years of health work at the several levels of government, my faith in the future of American medicine and dentistry remains firm because I believe that when crucial decisions must be made by these professions, they will usually be made wisely.

But let us make no mistake about it. There is increasing interest and concern among most thinking people and at all levels of government about health matters. In our zeal to preserve our free enterprise system, let us not be like the ostrich and fail to take cognizance of the problems at hand.

The department of government which is called "Health" spends the taxpayers' money. It is to be expected that such monies be spent wisely. It is of paramount importance, therefore, that the health department be professionally directed by a qualified health administrator.

The fragmentation and dissemination of tax-supported health programs throughout government at any level may result in impairment of their effectiveness. Such scattering of responsibility is also a threat to their being kept under professional direction. A department of health should be responsible for the expenditure of tax monies spent for health work. Moreover, the physicians and dentists of the area served should be thoroughly informed or enlightened partners in the entire program.

A short time ago, as is my weakness, I joined another organization. It is called The American Association of Medical Writers, and one of its major projects for 1956 is to make me a better writer. One of its admonitions was "Make it as short as possible—and then make it shorter." I have made this presentation as short as possible and then shortened it some more. I have used simple words with as much clarity as I could muster. If you approve of what I have said, I shall have had my reward. If you disapprove, we'll talk it over. I am grateful for this opportunity to meet many of you. I hope that our relationships will be pleasant and productive—to the end that we may have better dental health in Texas.

A Congressman Speaks*

HON. DEWEY SHORT, M.C.
Seventh Missouri District

THERE IS NOTHING quite as peaceful as Washington, D. C. on a Sunday morning in spring. The air is calm; the temperature pleasant; birds are singing, and the taxi cabs, for the most part, are quietly parked in front of the homes of the drivers.

No major policy decisions are being made today; no accusations are being leveled by opposing political parties; and even members of the House and Senate are content to let this day proceed quietly and without fanfare.

Even the typewriters are stilled in all of the labyrinth of government agencies that are now an inherent part of our federal government.

I dare say that the consumption of red tape on an average Sunday in Washington is less than 2 per cent of the daily average for the remainder of the week!

In many respects, I envy your profession—a patient walks into your office, and complains of a toothache or the need for dental care. You put down his name and address in a book and either treat him immediately, or arrange for a later appointment. His needs are relatively clear cut. He wants dental care. He needs oral surgery, or he must have some teeth restored, or perhaps he needs an upper or lower denture. But when that patient comes into your office you can be pretty well assured that what he wants from you, in most instances, will involve a specific part of his anatomy that can easily be identified.

That is not true of a member of Congress. We never know what a constituent wants or will ask for, and I can assure you that the requests encompass the widest possible range. And sometimes our answers are not quite as clear cut and our assistance is not quite as concrete as the relief you can afford your patients.

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* Presented before the Washington, D. C. Section of the American College of Dentists at their Annual Meeting, March 11, 1956.

In that respect, I am reminded of an immigrant who came to this country not many years ago who didn't know too much English but he did know plumbing. So he started a plumbing business on his own and found that he often was called upon to clean out clogged drains. Experimenting one day, he discovered that by pouring hydrochloric acid down the drain he could remove most of the obstruction in a very short time. He was quite pleased with his discovery, but living in this day and age, and now being an American citizen, he thought he had better check what he was doing with the government. So he wrote to his Congressman and told him he was using hydrochloric acid to clean clogged drains and asked him if this was O. K. Now the Congressman, being wise in the ways of government, immediately referred the letter to the Bureau of Standards, and so advised the plumber.

The Bureau of Standards, after several days, finally wrote to the plumber, as follows:

"Dear Sir:

"Your letter addressed to the Honorable .... has been referred to this office for reply since the subject matter is one in which the Bureau of Standards has primary interest.

"May we take this opportunity to advise you that the efficacy of hydrochloric acid is indisputable. However, the corrosive residue is incompatible with metallic permanence."

Sincerely yours,

Now the plumber, having been introduced to federal bureaucracy, and being rather impressed with the letter he received, wrote back directly to the Bureau and said, in effect "Gentlemen, I am happy it's O. K."

When the Bureau received this reply, it took them several days to find his original correspondence and their first reply because the plumber failed to note the reference number on his letter. But finally they found their first reply and his original letter, so they wrote again to the plumber, and said:

"Dear Sir:

"In reply to your reply of our communication to you concerning the uninhibited use of hydrochloric acid, we must advise you that we cannot assume responsibility for the production of toxic and noxious residue that is normally associated with hydrochloric acid. May we therefore suggest your immediate consideration of an alternative procedure?

Sincerely yours,

The plumber received this letter, and still not being too well versed in the English language, but at least impressed with the euphonious structures of the letter, replied:

"Thanks very much. Happy to know it's O. K."

He sent his letter to the Bureau and this time the Bureau had no difficulty in locating the original correspondence for it managed to land on the desk of the individual responsible for the two previous letters. This young man, being a fairly new federal employee, finally decided to take matters into his own hands, and promptly sent the plumber the following telegram:

"DON'T USE HYDROCHLORIC ACID, IT EATS HELL OUT OF THE PIPES."!!

Now gentlemen, whether we like it or not, we are living in an era of federal bureaucracy; we are living in a day and age when the federal government is assuming more and more jurisdiction over the affairs of our citizens—jurisdiction that may be highly questionable from a constitutional viewpoint, but one that is being accomplished in fact, notwithstanding.

I do not profess to know when or where this will cease. I do know that the American people accept and expect benefits that only a few years ago would have been considered almost socialistic.

There is, of course, a fundamental danger in the growth of the national government, for as individuals and states surrender their jurisdiction to the national government, the power of a small group becomes more highly concentrated. There is always danger in undue concentration of power in a few. And as the Federal government assumes the responsibility of many fields of social endeavor that not too long ago were considered to be individual responsibilities, so also does the initiative of the individual disappear.

So what I am about to say does not necessarily reflect what I want to see happen, but rather what I expect to see happen.

This nation is more health conscious than at any time in its history. The physicians and dentists of this nation are responsible for this great awakening on the part of the public of the need for improved health care. And having brought about this awakening, it is up to the physicians and dentists of this country to satisfy that demand.

Now last year, on July 19, 1955, to be exact, I addressed the Postgraduate Medical Assembly of South Texas at the Shamrock Hotel in Houston. I'd like to quote to you part of what I said at Houston:

"I know it is unnecessary for me to tell you that socialized medicine, or any other name that you may wish to call a program of free medical care, is on the horizon. I can think of nothing that would do more to stop the progress of medicine than for this Nation to engage in a program of national socialized medicine. On the other hand, you, as doctors, have made this Nation health conscious; you have stressed medical examinations, early treatment, danger signs, annual x-rays, and as a result you have made every person in this country extremely aware of the necessity for prompt and adequate medical care. As a result the health of the Nation has prospered. The average life span of men and women of this country has increased and this in turn has increased the national income. But having started this very desirable awareness of the need for proper medical treatment, it is incumbent upon you as private citizens, as advocates of the free enterprise system—yes, as members of a capitalistic team—to meet those demands through the free enterprise system. If that demand is not met by you as private practicing physicians, or by you as groups of private practicing physicians, then it will be done for you by the Federal Government.

"That is the history of this Nation and nothing you or I can say will stop it. It is only if you and I fill the needs of the people through the free enterprise system that that system will continue to exist as we know it.

"It is for you to decide as leaders in your communities, as men respected and loved by your patients, your friends, and your neighbors, as to where and how and when we are going ahead. It can be done by direction of the Federal Government or it can be done through the free enterprise system and the cooperation of the Federal Government, but as sure as I am standing here today, it will be done.

"You will have to make the choice—and I believe I know what your choice will be."

And what I said to the physicians applies equally to the dentists.

Now that means simply that your dental health programs must of necessity be expanded. They must be organized and paid for by individual participants, by industrial participation, by federal assistance, or a combination of all three. The other day the House of Representatives passed a medical care bill for the dependents of members of the Armed Forces. Under that bill, we envision a rather substantial medical service or group health or insurance program with premiums paid for by the Government which will provide a substantial program of dependent medical care in civilian facilities. In my opinion, within a matter of a few years, or perhaps less, that bill, if it becomes law, will be amended to provide for a dental health program in the same manner as medical care will be provided in civilian facilities.

To me it is inevitable, because I am of the opinion that industry is going to participate to a much greater extent in dental health programs and as these programs become a part and parcel of the benefits available to workers in industry, the Armed Services will have no choice in order to remain somewhat competitive, but to follow in the footsteps of industry.

Of course there are great advantages to these types of programs. It is all well and good for a patient to insist upon $200 or $300 worth of dental care, but it doesn't do the dentist much good if the patient doesn't pay his bill. Under an insurance program, the dentist is assured of his fee. Not very long ago most of the physicians of this country were opposed to group health programs—such as Blue Cross and Blue Shield. In 1948 there were only 30 million people covered by insurance or group health programs. Today there are 105 million people covered by an insurance or group health plan. And in the very near future, I am confident that the same thing is going to happen in the practice of dentistry.

And my friends, as far as I am concerned, it is a perfectly logical answer on the part of free enterprise. Socialized medicine in any form is anathema to me and to many other people. But free enterprise and capitalism, are not good just because of their names—they are good because of what they accomplish. And if the American people demand and insist upon more adequate dental care, and if it is possible through an insurance or group health plan to provide care under a system that permits a patient to select his own dentist, then certainly it is to the advantage of the patient and in my opinion, to the advantage of the dentist.

I hope that what I have said here this morning will not be misconstrued. I am trying to give you my personal views on what I think is going to happen in this nation in the years ahead. I am of the opinion that the American people will demand a dental health program. Perhaps it will be paid for by the government in part, by industry in part, and in part by the patient himself. But it is inevitable that some type of program will be adopted. In my opinion, it is far wiser for you to not only accept the program, but to encourage and develop it yourselves, so that the patient will retain his right to choose his own dentist, and that initiative and ability will continue to be the criteria which distinguishes between the successful dentist and the below average dentist.

Group participation, or a sharing of the risk is not incompatible with free enterprise. In fact, it has developed and prospered under free enterprise.

All of our mass insurance programs, life, health, disability, fire, theft, and comprehensive, are based upon the principle that a general sharing of the risk is inexpensive to the individual so long as there are a large number of participants in the program who can assume a very minor share of the calamity when it occurs.

As I previously mentioned, health insurance programs were frowned upon by many physicians in this nation just a few years ago. Today these programs have become an accepted form of American life.

So long as the freedom of the individual is preserved, the benefits that flow from any type of dental or medical health program are justified.

I have opposed, and will continue to violently oppose, compulsion in any form, except when there is no alternative.

I know of no more bitter pill that I forced myself to swallow than the enactment and extension of the Doctors Draft Law. But at that time there appeared no alternative.

We hope now with the passage of H. R. 9428 in the House, which provides for a pay increase for physicians and dentists, that we may have solved the medical and dental procurement problem of the Armed Services. Only time will tell.

But to me, that bill is a logical answer to a serious problem. It is the American answer to the problem. In it we recognize that the resignation rate of career physicians and dentists is three times greater than those who are entering the Service on a career basis. And one of the major causes of this high resignation rate is the economic factor.

We believe we have, by providing adequate incentives, solved, to a large part, the economic problem. And that is a fair solution. The only alternative would be to continue a discriminatory law for those who are no longer liable under the regular draft law and such action could only be justified when other reasonable efforts have failed.

In my opinion, the recent recommended pay increase for physicians and dentists may well obviate an extension of the Doctors Draft Law.

However, I do want to say one word of caution—we are still going to have to call upon physicians and dentists who are over the age of 26 but under the age of 35, who are registrants and who remain liable under the regular draft law because of the deferments they receive while attending medical or dental school.

But I sincerely hope that the new pay increase for physicians and dentists will make it possible for us to eliminate the necessity of inducting or ordering to active duty physicians and dentists over the age of 35.

Before I conclude, let me say that in spite of the disagreements and conflicting views that some of us may have had in the past with regard to the utilization and induction of physicians and dentists, nevertheless I have now and have always held a high regard for the American Dental Association, as well as the American Medical Association.

I am delighted to know that these two great American organizations have seen fit to substantially support the two recent medical bills that passed the House of Representatives.

As you know, there was some question about the freedom of choice provision insofar as the American Medical Association was concerned in the Dependent Medical Care Bill, but fortunately dentists were not concerned. As a matter of fact, under the Dependent Medical Care Bill, dental care, as such, has been practically eliminated insofar as dependents in the Armed Forces are concerned. What we in effect did was to recognize a practical situation. While dental care is theoretically available for dependents in the Army and Air Force, nevertheless as a practical matter it is rarely provided, because the dentists in the Army and Air Force have all they can do to take care of active duty personnel.

Gentlemen, I have enjoyed being with you and I hope that you will some day see fit to ask me to come back to another pleasant Sunday morning interlude.

The American Association for the Advancement of Science

Proceedings of Section Nd—Dentistry at the One Hundred Twenty-Second Annual Meeting.*

Edited by
GEO. C. PAFFENBARGER, D.D.S.**

An excellent symposium on "Newer Knowledge of the Physiology of Saliva" was arranged by J. F. Volker, Director of Research, University of Alabama Medical Center and Dean, School of Dentistry, University of Alabama.

Wednesday Morning Session. Part I

J. F. Volker, presiding.

The chairman in his introductory remarks pointed out that this symposium is evidence of the renaissance of interest in saliva from a dental point of view and that for far too long the physiology of the salivary glands and saliva was a very neglected area.

Abstracts of all of the eleven papers follow.

1. The Effect of Salivary Gland Extirpation on Experimental Dental Caries in the Syrian Hamster

C. E. Klapper
University of Alabama Medical Center
Birmingham, Ala.

The effect of the major salivary glands on the production of dental caries in Syrian hamsters has been reported. Under the conditions of the earlier experiment the amount of dental caries was approximately the same if the saliva lacked the fraction from the parotid gland or from the submaxillary and sublingual glands. The ham-

* Held in Atlanta, Georgia, December 28, 1955.
** Member of the AAAS Council representing the American College of Dentists.

sters were fed a cariogenic diet containing 60 per cent sucrose.

To evaluate further these results the study was extended using a less cariogenic diet containing 20 per cent sucrose and 36 per cent whole wheat flour. Forty-five animals were divided into four groups. In Group I the submaxillary and sublingual glands were removed and the ducts of the parotid glands were tied. In Group II only the parotid ducts were tied. In Group III the sublingual glands were removed. In Group IV the submaxillary glands were removed. All animals were maintained on the diet for 70 days.

The caries scores for the various groups were: Group I (completely desalivated)—58.8; Group II (parotid ducts tied)—4.6; Group III (sublingual glands removed)—10.6; and Group IV (submaxillary glands removed)—30.7.

The data indicate that the secretion of the submaxillary glands afforded more protection against dental caries than that of the other major salivary glands. Also the caries score was greater for the group deprived of the sublingual gland secretion than for the group whose parotid ducts had been tied. Since the sublingual is a much smaller gland than the parotid it would appear that the type of secretion was of greater importance than the amount. The histology of the major salivary glands indicates that the secretion of each is distinctive. The submaxillary glands contain both mucous and serous secreting cells. The acini of the sublingual gland are made up entirely of mucous producing cells while those of the parotid gland are exclusively serous in nature. When the secretion from either of the two glands which contains mucous secreting elements was eliminated from the oral cavity the caries score was high. This close correlation indicates that the mucous portion of the saliva probably played a more important role in the prevention of dental caries than did the serous fraction.

The discrepancy between this experiment and the previous one might be explained by the type of diet. The 60 per cent sucrose diet was so cariogenic that the elimination of the saliva fraction from one salivary gland was enough to remove any protection from caries which might be afforded by the saliva. In the present study the cariogenic potential of the diet had been reduced to where it was possible to detect a significant difference in caries rate due to the type of saliva within the oral cavity.

2. Parotid Salivary Components Under Various Conditions of Stimulation

Howard H. Chauncey, Peter A. Weiss, and Vincent F. Lisanti
Tufts College Dental School
Boston, Mass.

Comparative studies on the effect of paraffin, flavored chicle, and lemon as salivary stimulants indicated that paraffin elicited the most constant mean flow rate, while the lemon produced the greatest variation. The secretion rate with flavored chicle decreased with time, but the decrease could be controlled by having the subject change boli every five minutes. This permitted a constancy of flow approximating that elicited by paraffin, but was greater than that evoked by either paraffin or lemon.

Simultaneous measurement of the secretion rate of both parotid glands showed no significant difference between the right and left glands. Samples collected in the fasting state, upon arising in the morning, and after breakfast had identical mean flow rates.

Measurement of the inorganic, nitrogenous, and enzymic components of the parotid secretion indicated only slight or non-significant differences in the pH and in the potassium, calcium, bicarbonate, acid phosphatase, and cholinesterase contents from the right and left glands. However, a marked difference existed for sodium, chloride, phosphate, non-protein nitrogen, total proteins, and total esterases.

No significant difference was observed between the potassium, pH, total esterase, and cholinesterase values for parotid saliva obtained before and after eating, while the sodium, calcium, chloride, phosphate, bicarbonate, total proteins, non-protein nitrogen and acid phosphatase values showed marked variation.

Intramuscular injection of mecholyl produced a marked increase in the flow rate, chloride, and cholinesterase titers of parotid saliva. Extreme changes were noted in the sodium and calcium levels, the latter being three times greater than the established normal mean value. Only the acid phosphatase levels showed a decrease. Potassium values showed no change.

Oral administration of 2-acetylamino-1, 3, 4-thiadiazole-5-sulfonamide "Diamox," in doses from five to twenty five milligrams per

kilogram caused no significant change in the parotid saliva electrolytes, pH, or secretion rate.

3. The Origin of the Total Mixed Saliva of Man

Leon H. Schneyer
Departments of Physiology and Clinical Dentistry
School of Dentistry and Medical College of Alabama
University of Alabama
Birmingham, Ala.

The fluids secreted into the oral cavity by the major and minor salivary glands, together with oral debris, make up the total mixed saliva. Observations of the specific contribution of each major salivary gland pair and of the small mucosal glands have, with the exception of the parotid glands, until recently been extremely fragmentary. The paucity of such data may be attributed largely to difficulties encountered in collecting separate submaxillary, sublingual, and mucosal secretions.

The recent development of methods for the separate collection of submaxillary, sublingual, and mucosal secretion have permitted more systemic investigation of the sources of the total saliva. For essentially "resting" conditions, the submaxillary glands contribute the bulk of the total secretion (approximately 70%); the sublingual glands contribute a very minor part (approximately 5%); the parotid glands contribute an intermediate portion (approximately 25%); and the small mucosal glands make no significant contribution.

4. Some Observations on the Effect of pH on Teeth

John Haldi and Winfrey Wynn
Division of Basic Sciences in the Health Services, Emory University
Atlanta, Ga.

The technic originally described by Stephan for taking pH measurements on the teeth with an antimony electrode has been used in our laboratories for pH determination on the teeth of human subjects and of animals under various conditions. The purpose of these experiments is to determine whether the initiation and the progress of the carious lesion in the albino rat are related to the presence of

acid and the degree of acidity. pH measurements were therefore made on intact surfaces of the teeth and in carious lesions.

While at present we are not in a position to say whether or not the initiation of caries is possible without acid on the teeth, we have shown that in desalivated animals there is a definite drop in the pH as the carious lesion progresses.

Numerous pH determinations obtained under a variety of experimental conditions show the importance of following a standardized procedure. When readings were taken at 8:00 p.m. and 9:00 p.m. on 7 different days over a 30 day period on the teeth of the rats allowed to eat a cariogenic diet ad libitum, the average maximum difference was 0.2 pH; this difference was considerably greater (0.6 pH) when the readings were taken at 9:00 a.m. and 3:00 p.m. When the animals were trained to eat half their daily food allowance within 20 minutes there was very little difference in pH readings taken 15 minutes after eating in mid-morning and mid-afternoon. A marked difference prevailed in the pH readings in desalivated and non-desalivated animals. In the former the range was 6.30-6.50; in the latter 7:75-8.00.

5. Enzymic Change in Parotid Saliva as Related to Psychopathology

Donald B. Giddon and Vincent F. Lisanti
Tufts College Dental School
Boston, Mass.

In a survey of a "normal" population, it was noted that the parotid gland secretion of all individuals tested had measurable cholinesterase activity. Because of its possible relation to autonomic activity, a subsequent study on mental patients revealed that some of the individuals did not have measurable cholinesterase activity. To evaluate the hypothesis that cholinesterase was related to the psychological state of the individual, a study was designed to compare the "normal" or everyday activity levels (base-lines) of cholinesterase with levels measured under induced states of "stress." A base line was then established for ten subjects over a period of three months in which blood pressure, pulse rate, and cholinesterase titers were recorded. This was followed by a series of "stress" periods on these same subjects which consisted of taking blood, hyperventilation and

cold pressor. A psychological as well as physiological evaluation of the "stresses" was recorded. The results demonstrated that both the anticipation of the "stress" as well as the "stress" itself produced marked depression of the group cholinesterase levels while the blood pressure mean values did not change. The difference between the base line and "stress" levels was statistically significant. A follow-up pilot study using hypnosis as a "stress" suggested that cholinesterase may be used as a measure of psychological "stress" as divorced from physiological "stress."

Wednesday Afternoon Session

John Haldi, School of Dentistry, Emory University, presiding.

6. The Carbohydrates of Human Saliva

Ward Pigman, Jane Reid and William Hawkins
University of Alabama Medical Center
Birmingham, Ala.

Human salivas exhibit reducing power to the reagents used for sugar analysis and give positive anthrone tests. The nature and amount of carbohydrates in saliva might be expected to exert an important effect in determining the type and growth of oral microorganisms. Lundqvist found that salivas deproteinized with zinc hydroxide (after Somogyi) showed reducing powers corresponding to less than one milligram of glucose per 100 cc.

The present work reports the first analysis of the reducing power of the individual human salivary secretions of the submaxillary, sublingual and parotid glands. Stimulation does not seem to have an appreciable effect on the reducing power of the submaxillary and sublingual glands but may affect the parotid secretion.

Some individuals produced secretions in which the total reducing power of the individual secretions of the major glands is appreciably less than that of the whole saliva. A portion of this difference, at least, may arise from the secretion of the minor mucosal glands. Several samples of this secretion exhibited a high reducing power.

The reducing powers of salivas, calculated as glucose, have no absolute significance. Additional work of two types has confirmed Lundqvist's observation of the absence of glucose in salivas, except possibly in minute amounts. Deproteinization experiments gave re-

sults similar to those described earlier. The extraction of lyophilized secretions of the individual major glands and whole saliva gave no evidence for glucose by reducing power and chromatagraphic procedures. The sensitivity, however, was only about 5 mg. per 100 cc.

The carbohydrate fraction is a complex mixture of low and high molecular weight materials, but apparently no free sugars are present. Mucin may provide an appreciable fraction of the reducing power since its reducing power is about 3 per cent of that of the same weight of glucose.

7. Electrophoretic and Ultracentrifugal Studies of Human Saliva

Jane Reid, Public Health Service Research Fellow;
Ward Pigman, Biochemistry Department
University of Alabama Medical Center
Birmingham, Ala.

For the first time, the secretions of the major salivary glands have been studied by means of the Tiselius electrophoresis apparatus and the analytical ultracentrifuge.

The parotid gland secretion and the submaxillary gland secretion of humans have been collected after stimulation. Ultracentrifugal analysis has been performed both before and after concentration. Three- to four-fold concentration is necessary before electrophoretic analysis may be undertaken. The concentrated materials have been studied at pH 6, 7 and 8.5 in 0.1 ionic strength buffers. Electrophoretic analysis indicates the presence of eight components in the pure parotid secretion. By preliminary ultracentrifugal analysis, only a few components with different sedimentation characteristics were indicated. The parotid secretion has one major component with a very low mobility (about $+0.3^{10-5}$ cm./sec./volt/cm. at pH 8.5 in veronal-sodium chloride buffer) over the pH range studied. Two or three components were apparently present in intermediate concentration. The remaining components represent only minor constituents of the parotid secretion.

The submaxillary secretion showed evidence for the presence of six electrophoretically separable components. Three of these were apparently present in intermediate concentration. The others represented only minor components of submaxillary saliva. Preliminary

ultracentrifugal analysis indicated the presence of only two components with different sedimentation characteristics. These components have rather low molecular weights as judged from their sedimentation constants.

8. Some Observations on the Relationship Between the Salivary Glands and the Endocrine System

William G. Shafer and Joseph C. Muhler
Indiana University, School of Dentistry
Indianapolis and Bloomington, Ind.

Evidence is gradually accumulating that the salivary glands are intimately associated with various endocrine organs. Both the Japanese and French workers have made significant contributions in relating these structures. More recent studies in this country have shown that the salivary glands appear to be regulated in part by the pituitary and thyroid glands. Interference with pituitary function produces histologic alterations in the salivary glands which are reversible by the administration of thyroxine and testosterone. Studies on the proteolytic enzyme activity of the rat submaxillary glands indicate that this activity may reflect the histologic changes occurring after the administration of certain hormones or interference with the function of several of the endocrine organs. It appears logical that histologic alteration in the gland may be accompanied by functional alteration in the gland in which some property of the saliva may be changed, and this may be related to dental caries incidence.

9. Metabolic Response of Salivary Glands to Injection of Thyroxine and Related Compounds

S. B. Barker, H. S. Schwartz and W. J. Lewis
Department of Pharmacology, University of Alabama
Medical Center, Birmingham 3, Ala.

Slices of salivary gland tissue of the rat display an active oxygen consumption in a phosphate-buffered Ringer solution with glucose as substrate. This metabolic rate, although less than that of kidney, is higher than most of the other tissues of the body, such as liver,

brain, heart, diaphragm, skeletal muscle, smooth muscle, pancreas, and gastric mucosa.

Since thyroidectomy lowers and hyperthyroidism elevates metabolism of the whole animal, it was expected that the principal tissues would show similar alterations. Although some do not, those comprising the bulk of the animal body do. Salivary gland, along with gastric mucosa and pancreas, is one of the group apparently under thyroid control. The metabolic effects of several thyroxine derivatives and analogs have been studied in thyroidectomized rats in order to compare their qualitative and quantitative effects. Salivary gland was found to be stimulated metabolically after the injection of such compounds as 3,5,3′ triiodothyronine, 3,5,3′,5′-tetraiodothyropropionic acid, 3,5,3′,5′-tetraiodothyroacetic acid, 3,5,3′-triiodothyroacetic acid and thyroxamine.

It is suggested that these compounds are active directly on the responsive cells, rather than after transformation into thyroxine.

(Supported by grants from the Smith, Kline and French Foundation and the American Cancer Society.)

10. Preliminary Observations on the Solubility of Human Enamel

Winfrey Wynn and John Haldi, Division of Basic Sciences in the Health Services Emory University, Atlanta, Ga.

Since there is much confusion in the literature about the biochemical and chemical nature of "chalky" enamel, studies have been undertaken to determine its composition.

In preliminary work "chalky" enamel was obtained by soaking whole, sound human teeth in lactic acid buffers of the strength that may be found in the mouth (pH range of 5 to 7). The "chalky" enamel formed from soaking teeth in lactic acid buffer of pH 5 was found to contain 1.4% CO_2, 17.7% P, 33.8% Ca, 0.06%Mg, and 0.08% N as compared with 3.1% CO_2, 17.0% P, 34.7% Ca, 0.17% Mg, and 0.04% N found in normal enamel from the same teeth. The Ca/P ratios of the normal and chalky enamels were 2.04 and 1.91 respectively. Twelve liters of lactate buffer in which the teeth were immersed contained 63 mg. calcium and 0.5 mg. magnesium but no phosphorus when analyzed by chemical methods. The

absence of phosphorus as well as the presence of calcium and magnesium was confirmed by spectrographic analysis. The refractive index of the normal enamel was 1.615; for the chalky enamel 1.625. The x-ray diffraction patterns were practically identical. Examination of these data seems to indicate that very probably calcium carbonate and magnesium carbonate can be preferentially removed from enamel by the action of a lactate buffer at a pH of 5.0. The same studies are being made with lactate buffers of pH 5.5 and pH 6.

11. Glycolysis Inhibitors Among Compounds Containing Aldehydes, Ketones, and Organic Acids

R. S. Manly, Director of Research (Dental) Professor of Dentistry, and Gladys Hargreaves, Junior Research Associate
Tufts College Dental School, Boston, Mass.

Glycolysis inhibition has been studied on about 2500 compounds obtained from a variety of sources in order to discover those which deserve further study as possible inhibitors of dental caries. The method is a survey procedure to select a chemical that can diffuse through a thin layer of the centrifugate of human saliva, can inactivate the bacterial conversion of glucose to acids, and can have a sufficient persistence of action to resist 30 minute rinsing by a control solution. Findings with amines, amides, carbamates, phenols, alcohols, ethers, and esters have been reported elsewhere. The present study is concerned with those aldehydes, ketones, and organic acids which contain carbon, hydrogen, oxygen, and/or nitrogen, but no other element in the molecule.

The experimental procedure makes use of the sediment obtained by centrifuging human stimulated saliva. This is coated a few tenths of a millimeter thick on a glass electrode, and immersed in a glucose buffer. A steady pH differential is attained within a few minutes between the buffer and the sediment. The size of the differential depends upon the rate of acid production of oral microorganisms from glucose in the buffer. A solution of test chemical is placed in contact with the sediment for 30 minutes and replaced by a second control solution for another 30 minutes. Inhibitory action is observed as a relative decrease in the pH differential during the second equilibration with control solution.

There were 114 ketones studied, with some tried both in aqueous

solution half-saturated and in 10% propylene glycol concentrations at 1% or less. Eight substances showing inhibitory action of 50% or greater, but 4 had additional structures which might be responsible for inhibitory action. Ketones that were often inhibitory were those having a quinone or a 1,4-pyrone structure. Inhibitory action was aided in several instances by use of propylene glycol.

A total of 70 aldehydes was studied, with some tested in aqueous solution and others in 10% propylene glycol. Active aldehydes included formaldehyde, pyruvic aldehyde, succinaldehyde, β-ethoxy propionaldehyde, and three derivatives of benzaldehyde. The presence of 10% propylene glycol seemed to increase the chance for inhibitory action apparently because of its effect on solubility. Over 200 organic acids were tried, but only a few showed inhibitory action. The only inhibitory structures of interest were cyclopentene, 1-valeric acid, and 2-cyclohexene 1-caproic acid. Few additional compounds of a similar structure were available for comparison.

The foregoing program of Section Nd-Dentistry was co-sponsored by the three dental societies affiliated with the American Association for the Advancement of Science, namely, the American College of Dentists, the International Association for Dental Research, and the American Dental Association.

The officers for Section Nd-Dentistry for the Atlanta meeting were: Vice-President and Chairman, H. Trendley Dean, American Dental Association, Chicago, Illinois; Secretary, Russell W. Bunting, School of Dentistry, University of Michigan, Ann Arbor, Michigan; Committeemen-at-large, Willard C. Fleming, University of California, San Francisco, Wendell L. Wylie, University of California, San Francisco, California, Thomas J. Hill, Western Reserve University, Cleveland, Ohio, and James H. Shaw, Harvard University, Boston, Massachusetts; Society Representatives on Section Committee and Council, H. Trendley Dean (American Dental Association), American Dental Association, Chicago, Illinois, S. Wah Leung (International Association for Dental Research North American Division), School of Dentistry, University of Pittsburgh, Pittsburgh, Pennsylvania, and George C. Paffenbarger (American College of Dentists), American Dental Association Research Fellowship, National Bureau of Standards, Washington, D. C.

Dedication of University of Texas Dental Branch

CHESTER V. TOSSY*
Lansing, Michigan

WITH THE DEDICATION of the new six-million dollar teaching and research facilities of the University of Texas Dental Branch in the Texas Medical Center, Houston, on December 2, 1955, a significant contribution has been made to the further advancement of mankind's knowledge and health. Dentistry, as well as Texas, can well be proud of this new member of the growing research "health team." A major event in Houston's Texas Medical Center history, the dedication drew educators and professional men from throughout the state.

The dental school has been a part of the University of Texas only since 1943. It was founded by a small group of Houstonians in 1905. For more than two decades this institution existed on borrowed funds as a proprietary school, and then on borrowed time for more than another decade as a public trust, until it was finally adopted by the University of Texas. And now this new five-story aluminum, glass and marble building stands in the Texas Medical Center as a fulfillment of certain "dreams" shared by its founders, officers, faculty, alumni and other supporters.

As an outgrowth of The Texas Dental College (1905-43), the School of Dentistry is the oldest institution of higher learning in Houston. It also is one of the two oldest dental schools in the entire Southwest. The Texas Dental College's first four locations were leased floors of downtown store buildings. Its own red brick building, completed in 1925 and occupied for 30 years, became quite outgrown and inadequate even with numerous additions.

Now, the School of Dentistry, along with the postgraduate and dental hygiene schools, is housed in a five-story, aluminum, glass and marble structure, containing 50 basic science laboratories for four-man teams of freshmen and sophomores, each unit of which is

* Contributing Editor. JOURNAL OF AMERICAN COLLEGE OF DENTISTS.

equipped with a television receiver and two-way communication with the TV studios, and sound film room; 235 individual and completely equipped dental cubicles for junior and senior students; offices and research facilities for the faculty, including isolation and radio-isotope laboratories, and a special animal quarters with a diet kitchen and sterile operating rooms; a 400-seat auditorium, two 100-seat lecture rooms; seminar and conference rooms, with closed-circuit television; a library, with books and bound journals from the 1840's to 1955, and other facilities. It has 198,000 square feet of floor space. Much that was explored and discovered by the Curriculum Survey Committee of the American Association of Dental Schools, between 1930 and 1945, had its influence on this building. It is, in some ways, a materialization of those findings.

On the ground floor will be found a maintenance and repair shop, mechanical equipment, central supply, a print shop, and loading dock.

On the first floor are nine separate bays of 12 clinic cubicles each, and laboratories for senior students; public and student lobbies; a large theatre-type lecture room, seminar and conference rooms, equipped with television; diagnostic x-ray facilities; faculty clinics and offices; medical illustration facilities, and the administrative offices. Also on this floor are the offices of the Postgraduate School of Dentistry.

On the second floor are ten separate bays of 12 clinic cubicles each, with laboratories and dispensaries for junior students; a 400-seat auditorium; a patient waiting room; a student lounge; the library; faculty offices, and clinical television studio.

On the third floor are 25 four-man unit laboratories for freshmen students; a 100-seat lecture room; offices and laboratories; the television sound and film room, and the faculty lounge. The headquarters of the new School of Dental Hygiene are on this floor.

On the fourth floor are 25 four-man unit laboratories for sophomore students; a television studio for basic science and other demonstrations; faculty offices and laboratories, and a 25-seat seminar room.

The fifth floor, in addition to specially designed animal quarters, contains facilities for graduate teaching research.

Each of the unit laboratories on the third and fourth floors is

designed for year-round use by teams of four students. A freshman, for example, is assigned to a laboratory with three other students. He has a desk, a locker and joint facilities for all of his laboratory work in the basic sciences. Each of these freshman laboratories contains an anatomy table, an exhaust hood for chemical fumes, a television receiver and other equipment.

The sophomore laboratories, similarly equipped except for a work table in place of the gross anatomy facilities, are each designed for a curriculum which includes histology, embryology, physiology, pharmacology, microbiology, pathology, physics, dental prophylaxis and mouth hygiene, orthodontics, endodontics, radiology, surgery, operative dentistry, multiple restorations and ceramic prosthesis, and removable partial and complete restorations.

Since the unit laboratories are complete in themselves, there is virtually no movement of students, except to attend lectures which are not telecast. Each of the lecture rooms and the auditorium, however, is equipped with television receivers, as well as with movie and slide projection facilities.

Each of the junior and senior students is assigned to individual clinic cubicles, provided with a dental unit, dental chair, sterilizing unit, dental cabinet, x-ray view box, lavatory, work bench and study desk.

The junior curriculum includes nutrition, pathology, biophysics, dentistry for children, orthodontics, public health, preventive medicine, diagnosis, periodontics, principles of medicine, radiology, surgery, medicine; unit, multiple and complete restorations; mouth and facial restorations; the history of dentistry, practice management and a course in social and economic trends.

The senior curriculum includes orthodontics, preventive dentistry and medicine, endodontics, periodontics, surgery, medicine, unit and multiple restorations, mouth and facial restorations.

The University of Texas Dental Branch has its own library, but it also has the use of the Texas Medical Center Library, housing the books and journals of the Houston Academy of Dentistry, as well as the Houston Academy of Medicine, Baylor University College of Medicine and others.

Although the Dental Branch has its own large teaching staff (more than 40 full-time instructors, and nearly 30 part-time), it has more

than one reciprocal teaching arrangement with Baylor University College of Medicine. And even though these two schools are not in the same university, they have the same person to head their anatomy departments; he is professor and chairman of the department in both institutions, having been jointly appointed. The School of Dentistry has many other fortunate associations in the Center. For example, its three nearest neighbors are: The University of Texas M. D. Anderson Hospital and Tumor Institute, on the south; The Methodist Hospital, on the west; and Baylor University College of Medicine, on the north. The Methodist Hospital is one of several which affords the dental student an opportunity for hospital instruction, and residencies are available here, as elsewhere among the center hospitals. Also, the Dental Branch staffs the dental clinics in these facilities.

Now having facilities for 400 or more students in the School of Dentistry, the enrollment of freshmen was increased fifty per cent in the fall of 1955, from 60 to 90. The total enrollment is now more than 270. The newly established School of Dental Hygiene opened its first session with 21 girls enrolled in the two-year course. The Post-graduate School of Dentistry, established in 1951, is now presenting courses for doctors in the new building.

The average graduating class of the former Texas Dental College numbered but 17. Since the Dental Branch was established in 1943 it has had an average of 48 graduates each year. Its potential for the future is double this number.

The cost of the building and equipment was $5,937,497, nearly one third of which came from private gifts, including a $1,250,000 bequest from the M. D. Anderson Foundation, which established the Texas Medical Center. The Anderson Foundation also gave the Dental Branch its $430,720 tract of land in this health team development. The citizens of Houston, through efforts of the Chamber of Commerce, contributed $451,500. The total cost of the building, equipment and land was $6,386,217.

And though it is a well equipped dental school building, its chief importance to the citizens of Texas, and to the nation, is its dual purpose as revealed in the design of the building and its location. It was designed and equipped to train dentists and dental hygienists, as well as to provide facilities for research and post-graduate educa-

tion, with an underlying principle: it is built firmly on the belief that certain group methods of teaching are ideal and even essential in undergraduate professional training.

The dental students therefore are given the necessary instruments and facilities to learn the profession of their choice, dentistry, and though they receive thorough instruction and careful and constant supervision, their own individual incentives, or initiatives, are given the fullest possible freedom and encouragement.

They must learn, as all maturing individuals must and do learn, to do things for themselves, largely through personal experience. This is especially vital here, because dentists, unlike physicians, usually enter practice, alone, in their own individual offices, immediately after graduation. And for this reason, self-reliance and self-sufficiency are of paramount importance in their training. Facilities in the new building place greater responsibilities on the students from the very beginning.

This seemingly bold departure in undergraduate professional education has been tested in pilot studies there, as well as in graduate training elsewhere. But now, it is in full scale and inexorable operation in this school of dentistry, an institution which has had five decades of experience in training dentists under revolutionary conditions.

In its new location, the other aspect of this Dental Branch building's philosophy may be seen. The University of Texas Dental Branch is now, more than ever, part of a developing health team. This is, perhaps, a unique development, and one in which more than one university is taking part, and in which each component unit is cooperating voluntarily, "through consent of the governed," so to speak. For it is being developed in the American tradition, just as the colonies were united for common defense against their enemies (in this case, illness and injury) and to guarantee certain liberties (in this case, the pursuit of life which is healthy and happy, as well as long).

The Texas Medical Center is a voluntary and cooperative effort on the part of many groups to develop a total approach to the problems of health—physical, mental and spiritual—without traditional and disabling limitations of interest and support.

The new building is the outgrowth of efforts by doctors and lay-

men, cotton men and lawyers, oil men and real estate developers, newspaper editors and legislators, philanthropists and average taxpayers, and others, who together, put it there.

Thus, the new building of the University of Texas Dental Branch is a better place than the school ever had before, and it is *in* a better place than ever, for dental education and research.

As Mr. Tom Sealy, chairman of the University's Board of Regents, remarked in a brief address of welcome during the dedicatory services, "the support of the people of Texas, their enlightened citizenship made this building possible. It is a credit to dentists that they have earned the respect and the trust of the people of Texas." Dr. Logan Wilson, president of the University of Texas, commenting on the short period of time the dental school has been affiliated with the University, predicted that the school "will pay great benefits to the people of Texas by increasing knowledge and skill. I predict that it will be a leading center in the world in dental education."

Writing Award Competition

Sponsored by

The American College of Dentists

The American College of Dentists is initiating and promoting a competition in the writing of papers and essays, and in the preparation of manuscripts, for graduating students in the dental schools of the United States and Canada.

The purpose of the competition is to create reader interest, to stimulate the more wide-spread use of libraries, and to develop competent dental writers.

A prize of $500.00 and a plaque will be awarded the national winner. In addition, an appropriate plaque will be given the winner of each school entry.

RULES AND PROCEDURES

1) The competition is open to all senior students in the dental schools of the United States and Canada.
2) Students will be notified of the competition in the spring of their junior year, and manuscripts must be received by the Secretary of the American College of Dentists by February 1 of their senior year. This will allow ten months for preparation. Announcement of the winner will be made not later than April 1. The time and occasion of awarding the prize and the plaques shall be determined by the schools, but it is suggested that this take place prior to the graduation of the recipients.
3) Deans will be asked to designate a faculty member to promote the competition, to decide how the competition will be conducted, and to determine the manner in which the winner is selected, in each school. Only one essay may be submitted from each school in the National competition.
4) Manuscripts submitted shall be accompanied by a letter from either the faculty member designated to conduct the competition, or from the dean of the school from which they originate. This will assure the authenticity of the manuscripts submitted.
5) For each annual competition, the American College of Dentists will select and announce a topic.

6) The topic will be on a non-technical aspect of dentistry. The ethical, social, historical, or cultural relationships of dental practice, education, research, organization and journalism will be the areas from which the topic will be selected.
7) No hard and fast rule concerning length of the manuscript will be established. However, it is suggested that the manuscript not exceed ten to fifteen double-spaced typewritten pages, exclusive of bibliography, tables and charts and illustrations. White bond paper, 8½ x 11 inches must be used.
8) The original and five (5) copies must be submitted; this is for judging purposes. Manuscripts must be sent either flat, or folded once in the center. Pages must be held together by clips or fasteners. Footnotes must be designated by placing them at the bottom of the appropriate manuscript page, separated from the text by a line. References and bibliography must be on separate pages and must conform to the style adopted by the American Association of Dental Editors and the American Dental Association. Tables, charts and illustrations also must be on separate pages. Good compositional form must be followed.
9) Manuscripts will become the property of the American College of Dentists. None will be returned. The winning manuscript will be published in the JOURNAL OF THE AMERICAN COLLEGE OF DENTISTS.
10) The Committee on Journalism of the American College of Dentists will assume the responsibility of determining the winner. Its decision will be final.
11) Manuscripts will be judged as they reflect these general qualities: purpose, scholarship, accuracy, impartiality, neatness, objectivity, and as a contribution to the periodical literature of the profession.

For details concerning this competition consult your dean, your faculty adviser or write to:

DR. O. W. BRANDHORST, *Secretary*
American College of Dentists
4221 Lindell Blvd.
St. Louis 8, Missouri

Report of the Necrology Committee

San Francisco—October 16, 1955

Your Necrology Committee, consisting of Gerard A. Devlin, Irving M. Stransky and Gerald A. Mitchell, submits the following report for your consideration, moves its acceptance as a matter of record at the conclusion of its reading, and that a copy be sent to the nearest surviving relative of each deceased Fellow.

To have been a member of the American College of Dentists places the capstone of success and distinction upon each of our honored dead today. Their achievements in Dentistry, its related professions, and other fields, are far too numerous to mention. Our few poor words and moment of silence, are at best but a scant tribute to the lives and accomplishments of those illustrious friends and associates whose names appear on this year's scroll of honor.

Many have thought of *life* as an adventure, but it was left for Charles Frohman, while standing on the deck of the sinking Titanic that fateful night in 1912 to exclaim, "*Death* is the most beautiful adventure in life." This could only have been true when it came as a fitting climax to a life of unselfish service to God and his fellowmen, for ordinarily, life is the most precious possession of every member of the human race. God made us that way! Recorded in the Book of the Patriarch Job, we find these words: "All that a man hath will he give for his life." (Job 2:4) Surely, from a materialistic viewpoint, nothing is of any value without it.

Many beautiful words have been written, perhaps more spoken, and countless philosophies have existed since our creation, and even persist today among individuals and groups throughout the world regarding "Life after Death," but by far the greatest source of satisfying information is found in the sacred scriptures. What could be more fitting on this occasion, or more interesting to this group, which at the moment is memorializing those of our number who have gone from us during the past year, than acceptable assurance of what has become of the real, pulsating, vital individuals whom we knew and loved and have "lost awhile"? When with it too may come the added comfort of a knowledge of our own possible destiny

when we ourselves are called to "Join that innumerable caravan that moves to the pale realms of shade where each shall take his chamber in the silent halls of death."

David, in his memorable 23rd Psalm said, "Yea though I walk through the valley of the shadow of death, I will fear no evil, for thou art with me, thy rod and thy staff they comfort me." What a wonderful companion as we approach this trying but universal experience.

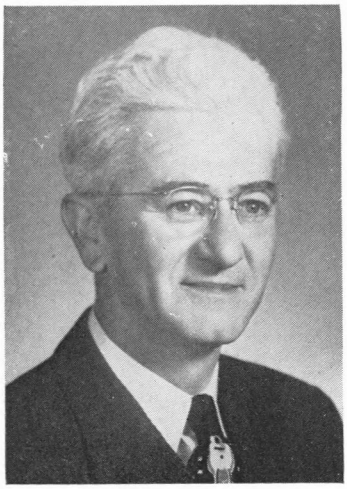
The mature thinking of this group must affirm that there *is* a future life, where all the unfairness and inequities of this present life are forever rectified. All hope of life after death centers in the resurrection. The Apostle Paul, in his letter to the church at old Thessalonica said (I Thess. 4:16, 17), "For the Lord himself shall descend from Heaven with a shout and with the voice of the archangel and the trumpet of God, and the dead in Christ shall rise first. Then, we which are alive and remain, shall be caught up together with them to meet the Lord in the air, and so shall we ever be with the Lord." What a wonderful promise! Then this further divine commentary found in the last book of the Bible lends added significance when it states, "Blessed are the dead that die in the Lord from henceforth. Yea, they do rest from their labors and their works do follow them." (Rev. 14:13) And then again the Psalmist reminds us that "Precious in the sight of the Lord is the death of his saints." (Ps. 116:15)

So, we sorrow not today as do others who have no hope, but as we think of the lives and works of our departed members, may we resolve that our own experiences shall be more fruitful and abundant, and whether of long or short duration, may reflect more fully the goodness of God, our Maker, as have the lives of those whose names we read today.

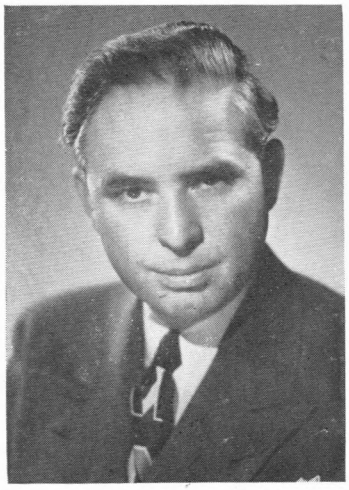
And now as we give them to the ages, these beautiful red roses, dedicated to their memory, symbolize our unerring belief in the ultimate eternal life of all who love and obey God.

"Be thou faithful unto death and I will give thee a crown of life."

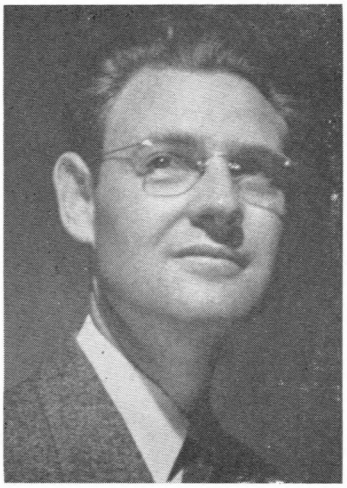
ROBERT M. APPLEMAN *(Opposite)*
Chicago, Ill.
1902-1955
Graduated from Ohio State University, College of Dentistry in 1927, Fellowship conferred in 1952



JOHN FRANCIS BAUMGARTNER
West Bend, Wis.
1892-1954
Graduated from Marquette University School of Dentistry in 1915, Fellowship conferred in 1948

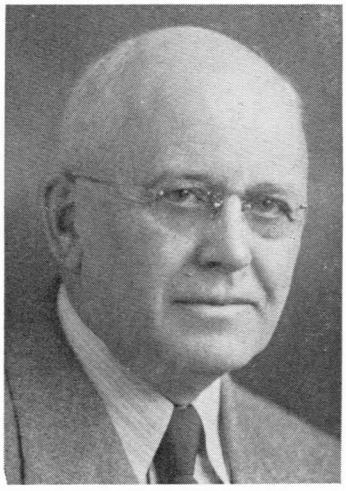


THEODORE C. BLUTAU
Rochester, New York
1898-1954
Graduated from University of Buffalo in 1921, Fellowship conferred in 1940



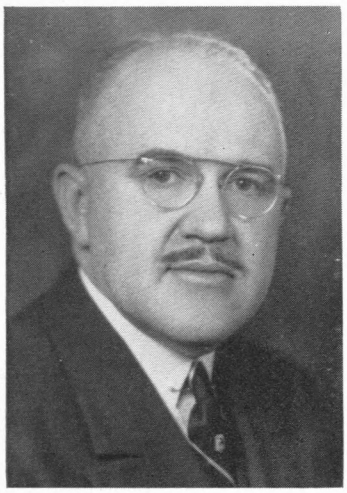
HERBERT G. CHILDS, JR. *(Opposite)*
Los Angeles, Calif.
1909-1955
Graduated from College of Physicians and Surgeons, School of Dentistry in 1934, Fellowship conferred in 1942

LOUIS CITRON
White Plains, N. Y.
1900-1955
Graduated from Columbia University, School of Dentistry in 1927, Fellowship conferred in 1945

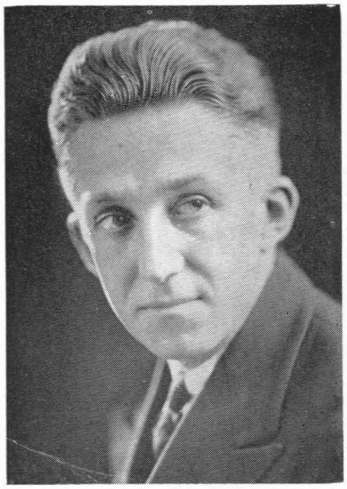


CLIFFORD E. CLARK
Menomonie, Wis.
1878-1954
Graduated from Chicago College of Dental Surgery in 1902, Fellowship conferred in 1947

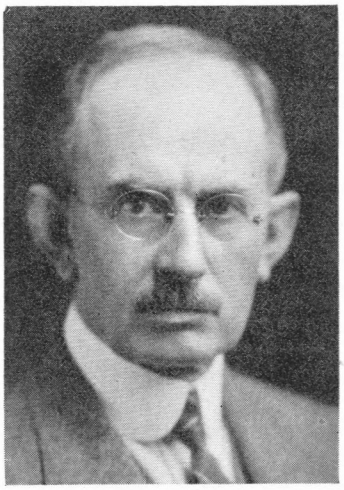
CLINTON E. CONLEY *(Opposite)*
St. John's, Mich.
1869-1955
Graduated from Indiana Dental College in 1899, Fellowship conferred in 1937



CROWN O. DIEHL
Hagerstown, Md.
1901-1954
Graduated from University of Maryland, College of Dentistry in 1918, Fellowship conferred in 1947



ARTHUR C. ENGEL
St. Louis, Mo.
1892-1955
Graduated from St. Louis University School of Dentistry in 1914, Fellowship conferred in 1937



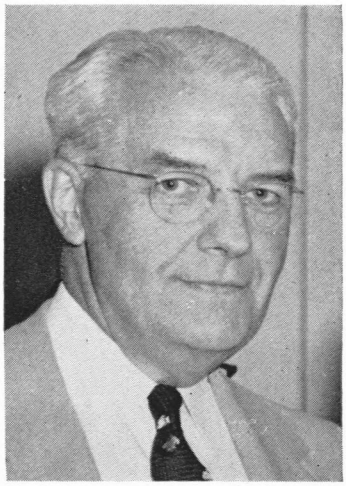
FREDERICK CHAS. FRIESELL *(Opposite)*
Pittsburgh, Pa.
1867-1955
Graduated from University of Pittsburgh, School of Dentistry in 1898, Fellowship conferred in 1923

E. HAROLD GALE
Albany, N. Y.
1892-1955
Graduated from University of Pennsylvania in 1913, Fellowship conferred in 1949

ROY JAMES GLEZEN
Washington, D. C.
1895-1955
Graduated from University of Denver School of Dentistry in 1926, Fellowship conferred in 1940

ANDREW H. HENDERSON *(Opposite)*
Greenville, Miss.
1883-1954
Graduated from Vanderbilt University in 1908, Fellowship conferred in 1938

GEORGE W. HILLIAS
Kansas City, Mo.
1870-1954
Graduated from Western Dental College in 1901, Fellowship conferred in 1928



SPENCE ATWELL HUTT, JR.
Houston, Tex.
1900-1955
Graduated from Northwestern University Dental School in 1923, Fellowship conferred in 1951

CAREY H. JENKINS *(Opposite)*
Hood River, Ore.
1875-1954
Graduated from North Pacific College in 1901, Fellowship conferred in 1943

TIMOTHY LEARY (Honorary)
Jamaica Plains, Mass.
1870-1954
Graduated from Harvard Medical College in 1895, Fellowship conferred in 1931

A. GORDON LYLE (Navy)
Newport, R. I.
1889-1955
Graduated from Baltimore College of Dental Surgery in 1912, Fellowship conferred in 1943

WM. J. MCLAUGHLIN *(Opposite)*
Bridgeport, Conn.
1880-1955
Graduated from University of Pennsylvania in 1902, Fellowship conferred in 1938

WILLIAM A. MCCREADY
Pittsburgh, Pa.
1877-1955
Graduated from University of Pennsylvania in 1903, Fellowship conferred in 1931

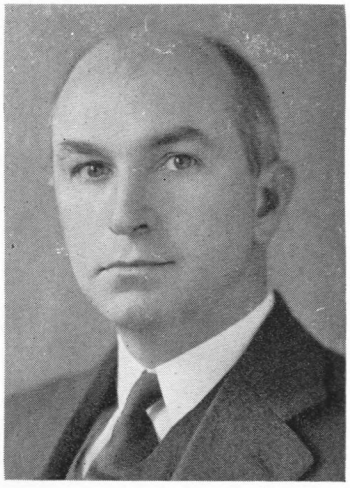
HOWARD M. MARJERISON
Boston, Mass.
1895-1955
Graduated from Tufts Dental College in 1916, Fellowship conferred in 1942

DANIEL PRESCOTT MOWRY *(Opposite)*
Montreal, Can.
1894-1955
Graduated from McGill University in 1917,
Fellowship conferred in 1945

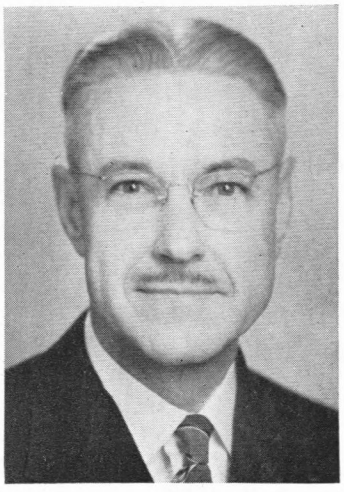
A. GORDON NUTLAY
Brighton, Mass.
1901-1955
Graduated from Dalhousie University, in
1940, Fellowship conferred in 1953

MOSES LEE PARKER
El Paso, Tex.
1883-1955
Graduated from Vanderbilt University in
1906, Fellowship conferred in 1954

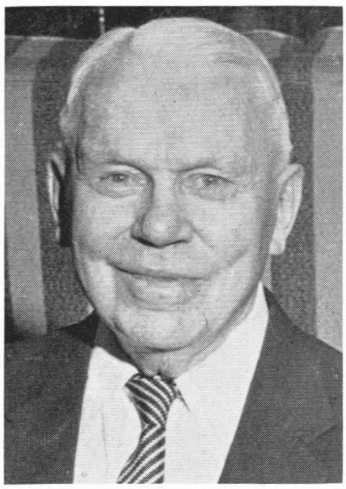
GLENN JASPER PELL *(Opposite)*
Indianapolis, Ind.
1886-1954
Graduated from Indiana Dental College in 1912, Fellowship conferred in 1931



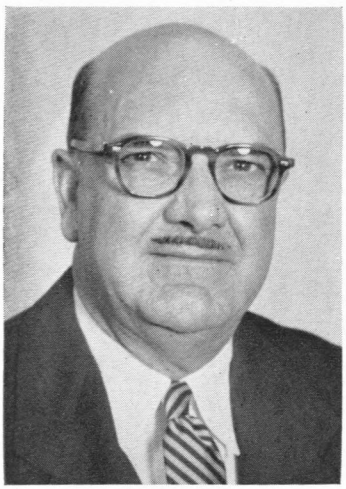
ROBERT E. PRICE
Newark, Del.
1888-1954
Graduated from University of Pennsylvania in 1916, Fellowship conferred in 1939



FRANK V. PRIME
Salem, Ore.
1889-1954
Graduated from North Pacific College of Dentistry in 1917, Fellowship conferred in 1939



THOMAS E. PURCELL *(Opposite)*
Kansas City, Mo.
1873-1955
Graduated from Kansas City Western Dental College in 1897, Fellowship conferred in 1933



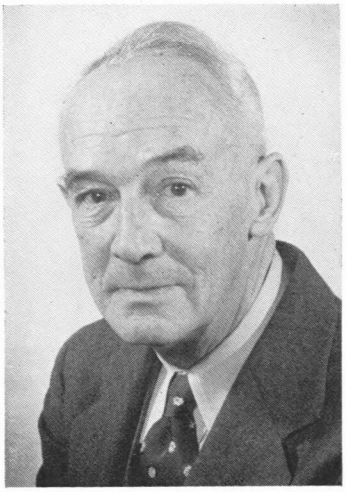
ANDERSON M. SCRUGGS
Atlanta, Ga.
1897-1955
Graduated from Atlanta Southern Dental College in 1925, Fellowship conferred in 1935

LOUIS R. SIEGAL
Hartford, Conn.
1892-1955
Graduated from University of Louisville in 1915, Fellowship conferred in 1950

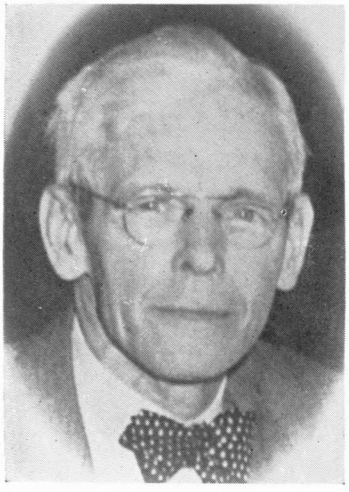
RICHARD P. TAYLOR *(Opposite)*
Jacksonville, Fla.
1871-1955
Graduated from University of Pennsylvania in 1899, Fellowship conferred in 1937

BENJAMIN F. THIELEN
Paris, Tex.
1877-1955
Graduated from Vanderbilt University in 1900, Fellowship conferred in 1938

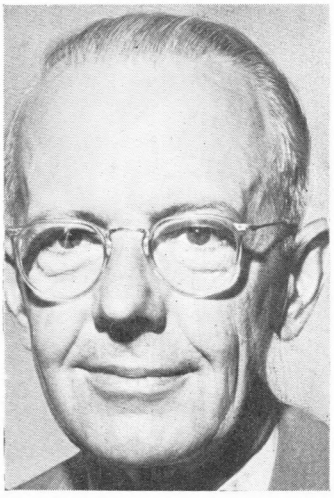
EMORY C. THOMPSON
Washington, D. S.
Graduated from Baltimore College of Dental Surgery in 1902, Fellowship conferred in 1938



LEWIS R. THOMPSON (Honorary) *(Opposite)*
Washington, D. C.
Graduated from Louisville Medical College in 1905, Fellowship conferred in 1932



ALLEN L. VOIERS
Jeffersonville, Ind.
1879-1954
Graduated from Kansas City Western Dental College in 1900, Fellowship conferred in 1942



DAMON W. VANASEN
San Diego, Calif.
1896-1955
Graduated from University of Southern California, College of Dentistry in 1918, Fellowship conferred in 1952

ROBERT ZUGSMITH *(Opposite)*
Pittsburgh, Pa.
1882-1955
Graduated from University of Pittsburgh School of Dentistry in 1903, Fellowship conferred in 1923

PHOTOGRAPHS NOT AVAILABLE

W. E. HOCKING
Devil's Lake, N. Dak.
1882-1955
Graduated from Chicago College of Dental Surgery in 1906, Fellowship conferred in 1939

WILLIAM R. POND
Rutland, Vt.
1876-1954
Graduated from University of Maryland College of Dentistry in 1899, Fellowship conferred in 1932

Standing Committees 1955-1956

Auxiliary Dental Service
- Ethelbert Lovett, *Chairman* 1956
- Merritte M. Maxwell, ... 1957
  Vice-Chairman
- Paul L. Chevalier 1958
- Allison M. Stinson 1959
- Francis B. Vedder 1960

Continuing Educational Effort
- Willard Ogle, *Chairman* ... 1956
- Cyril F. Strife, *Vice-Chm.* .. 1957
- George W. Redpath 1958
- Lester E. Myers 1959
- Ambert B. Hall 1960

Education
- Roy G. Ellis, *Chairman* 1956
- Philip E. Blackerby, Jr. .. 1957
- Francis J. Conley 1958
- Harry B. McCarthy 1959
- Walter A. Wilson 1960

Financial Support for Dental Education and Research
- Fred B. Olds, *Chairman* 1956
- Lester W. Burket, *Vice-Chm.* 1957
- Doyle J. Smith 1958
- Clemens V. Rault 1959
- Jack M. Messner 1960

Health Relationship
- John Steen, *Chairman* 1956
- Willis R. Osmun, *Vice-Chm.* 1957
- James E. John 1958
- David W. Brock 1959
- Raymond J. Nagle 1960

Human Relations
- Willard C. Fleming, *Chm.* .. 1956
- Harry S. Thomson, *Vice-Chm.* 1957
- Harold H. Hayes 1958
- Percy G. Anderson 1959
- Forrest Ott Meacham 1960

Journalism
- LeRoy E. Kurth, *Chairman* . 1956
- T. F. McBride, *Vice-Chairman* 1957
- Harry Lyons 1958
- W. W. MacQueen 1959
- Chas. A. Scrivener 1960

Preventive Service
- Walter J. Pelton, *Chairman* 1956
- Ruth Martin, *Vice-Chairman* 1957
- D. Robert Swinehart 1958
- Dorothea F. Radusch 1959
- Rupert H. Gillespie 1960

Prosthetic Dental Service
- Herbert L. Esterberg, *Chm.* 1956
- Luzerne G. Jordan, *Vice-Chm.* 1957
- Allison Gale James 1958
- Victor L. Steffel 1959
- Albin W. Rauch 1960

Public Relations
- Allen O. Gruebbel, *Chairman* 1956
- Kenneth R. Gibson, *Vice-Chm.* 1957
- Marion F. Jarrell 1958
- Edgar DeWees Baker 1959
- Jay H. Eshleman 1960

Research
- Thomas J. Hill, *Chairman* .. 1956
- Myron S. Aisenberg, *Vice-Chm.* 1957
- William G. McIntosh 1958
- Maynard K. Hine 1959
- Theodore E. Fischer 1960

Socio-Economics
- Thomas R. Marshall, *Chm.* 1956
- Donald H. Miller, *Vice-Chm.* 1957
- William B. Ryder, Jr. 1958
- Richard C. Leonard 1959
- Obed H. Moen 1960

Student Recruitment
- Ralph J. Bowman, *Chairman* 1956
- Frank P. Bowyer, Jr., ... 1957
  Vice-Chairman
- J. Wallace Forbes 1958
- Frank J. Houghton 1959
- O. M. Dresen 1960

Necrology (one year appointments)
- Chas. F. Harper, *Chairman*
- C. Willard Camalier
- Lowrie J. Porter

Nominating (one year appointments)
- Fritz A. Pierson, *Chairman*
- Malcolm W. Carr
- Sydney Cross
- Francis C. Ortolani
- H. Arthur Zappe