

INTERNATIONAL ASSOCIATION FOR DENTAL RESEARCH

PROCEEDINGS OF THE TWENTIETH GENERAL MEETING¹

THE COMMODORE, NEW YORK, N. Y.

March 14 and 15, 1942

COMPILED BY HAMILTON B. G. ROBINSON, *Editor*²

Washington University, St. Louis, Mo.

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I. ADDRESS OF RETIRING PRESIDENT

THE WORK AND FUNCTIONS OF THE INTERNATIONAL ASSOCIATION FOR DENTAL RESEARCH

Isaac Schour, D.D.S., Ph.D., Sc.D., College of Dentistry, University of Illinois, Chicago, Ill.

The address of the retiring president, while not subjected to any rationing, is traditionally brief. I shall therefore confine my remarks to a progress report of the accomplishments of our association during the last year and a projection of our possible progress in the future.

Journal of Dental Research. In spite of the fact that our foreign circulation is practically stopped and in spite of the increasing amount of energy that is being expended by our profession in war efforts, our *Journal* has enjoyed a 35% increase in subscription and in the number of published articles. There has also been an increase in the speed of publication.

We owe our deep gratitude to the Publication Committee whose official report

¹The sessions of the International Association for Dental Research preceded by agreement, those of the 19th Annual Meeting of the American Association of Dental Schools, in the same Hotel, March 16-18. Members of each body were welcome at, and participated in sessions of both Associations. The annual informal dinner was served to 132 members and guests at the Columbia University Club, March 15.

²The Editor of the Association received invaluable aid from General Secretary Edward H. Hatton in preparation of these proceedings.

you will read in the published proceedings. The unselfish and devoted efforts of Drs. Robinson, Hall and Arnim are especially commendatory since they have brought the Journal of Dental Research to a higher level of stability and usefulness in spite of the added load of teaching they have had to carry as a result of the war.

The attention of the dental profession has been called to the function and nature of the Journal of Dental Research not only by the subscription campaign but also by the exhibit of the Journal which has been shown at a number of dental meetings throughout the country.

In anticipation of the increased calls for back issues of our Journal in order to complete the files that have been interrupted during the war, Drs. Hall and Arnim of our Circulation Office have been accumulating a number of volumes that will be available to our foreign subscribers as soon as the present crisis is ended.

Dr. Robinson reports that 6 foreign papers were received during the last year. One of these was lost twice in transit and finally sent by diplomatic pouch.

Advance Abstracts of the Proceedings of the General Meeting. Another important stage in the growth of our association has been reached as a result of the efforts of Dr. Hatton. Without coercion but by patient and persistent appeals during the last few years he has so succeeded in establishing the habit of submitting the abstracts ahead of time that this year a 100% response has been achieved. The birth pains occasionally associated with the preparation of abstracts have not been entirely eliminated but at least they have been considerably reduced. We may look forward with confidence to the near future when our members will receive the issue of the Journal of Dental Research containing the abstracts of the papers several weeks preceding the meeting.

In accordance with the provision of our new By-laws, our secretary has revised our membership lists so as to exclude those members who have been in arrears for three years and thus automatically forfeited their membership in the association. Our December issue of the Journal contains an alphabetical list of our membership.

This report would be incomplete without recording my sincere appreciation and that of the association of the untiring and unselfish services of Dr. Hatton. The success of this meeting is largely the result of the continuity of his efforts and his devotion to our organization.

I also wish to express my appreciation of the work of the Local Arrangements Committee under the leadership of Drs. Bodecker and Neuwirth.

Projection of Future Progress. Fortified by our steady progress made during the last year, we may look forward to still further advance in the immediate future. In what direction will this progress be? The following are some of the possibilities that suggest themselves:

1. *The Journal of Dental Research.* Increased support of our Journal will continue to come from two important sources: the increase in the number of subscribers and the completion of the Gies Endowment Fund. Our Circulation

Committee reports that the percentage of our members who are subscribers to our Journal has increased considerably and that there is promise that eventually a 100% voluntary participation of our membership will be attained.

The splendid support of the Journal through subscriptions and the Endowment Fund presents an added challenge to increase its usefulness. This will be achieved by increasing the number and quality of the published reports. The Journal has increased its pages steadily during the last five years. Greater increases with almost immediate publication should be possible when funds from the endowment are made available.

Research progress cannot be measured merely by the accumulation of new facts. An additional requisite is the preservation and cultivation of a research attitude and activity that combine the discipline of a special field with the philosophical interest in other fields of knowledge. The inclusion of reviews of general fields would help to coordinate the findings that have come from different sources and would afford a common meeting place for the various specialized fields.

2. *Increased Discussion at Our General Meetings.* Our scientific sessions this year have been enriched by more frequent discussions than at previous meetings. This was made possible in part by the splendid spirit of cooperation of a number of our members who withdrew their reports from the scientific program in order to free more time for discussion.

We know that a diet deficient in vitamins and minerals results in retarded growth and disturbed calcification. Similarly a scientific meeting deficient in discussion may result in mental starvation. Discussion in proper proportion is essential. It can become the most vitalizing and stimulating accomplishment of the meeting. With the expected advent of the publication of our abstracts in advance of the meeting, members will be better prepared to raise questions or give constructive criticism.

3. *Organization of Research Sections of the I.A.D.R. in South America.* A number of us have been in personal correspondence with various dental investigators of South America and are acquainted with their research results published in scientific periodicals and monographs. Some of them have been elected to active membership at this meeting. We may look forward with confidence to the organization of research sections in the various centers of learning in South America.

4. *The Sponsoring of Lectures Before the Various Research Sections.* The stimulus that has always come from our annual meetings shows that the meeting of the mind and the exchange of ideas are essential to research progress. It may be true that talent develops in the quiet of solitude but it may also be said that its expression cannot be wholesome unless it be social and interdependent. Ideas may germinate in solitude but they will not bear fruit and develop into schools of thought except with the help of fellowmen.

Just as in national or international life, so in research, no one individual or group of individuals can be self-sufficient. It is the free interchange of information and ideas that makes for the best utilization of all resources. Such free

interchange has been effective through the medium of the Journal. Another valuable medium would consist of guest lecturers who would visit our sections bring to them a new message and in turn take with them the response and judgment of the host section. This method has been successfully employed by the Sigma Xi. Their experience would well serve as a basis for our consideration.

5. *The Sponsoring of Student and Local Research Clubs by the I.A.D.R.* Dr. Gies has repeatedly suggested that "our association should be kept a young man's organization." Of course youth is not a function of chronologic age alone. Mental youth exemplifies vigor and enthusiasm and alertness. These are the qualities of the research worker whether he be young or old, and are often found independent of age.

However, to promote and preserve the youthful spirit of research, it is important to initiate an appreciation of research as early as possible. The pattern of growth, whether it be of the tooth, the skull or the intellect, is established early in life and is not readily changed. It is therefore important that the research attitudes of mind be cultivated in the student as soon as we come in contact with him. The future leaders and devotees of dental research are among the students of today. We have the responsibility of discovering them as early as possible. This task does not supplant the work of our teachers but supports the aims and purposes of our schools. There should be some medium of activity whereby the responsible students learn to recognize that the pursuit of Science cannot be fulfilled by a series of assignments disposed of nor with the passing of so many clock hours of the curriculum. The Pursuit of Science is not an Assignment but a Cause that comes from within and calls for voluntary but constant devotion and application.

The thought suggests itself that those of us who are fortunate in being in frequent association with the student body could sponsor, each in his own particular sphere of activity, a small group of students that would meet periodically but informally to discuss recent scientific developments, to evaluate critically the findings of current research reports and to exchange ideas on the past and future of dental research. Such student activity should be kept on a free and informal basis. It would gather strength in the intensity of the mutual interests and not in the number of the participants.

While such student groups could readily evolve independently and without any affiliation with a larger organization, they could draw encouragement and inspiration from a sense of belonging with a stronger, well-established sponsor organization such as the I.A.D.R. The research reports in the current issues of our Journal could well serve as a valuable source of material for discussion topics. Special student subscription rates would foster the habit of reading with discrimination and regularity.

Permit me to express my conviction that this tentative idea of organizing in our various schools small student research clubs is not Utopian. It is timely and feasible. The clubs would, of course, evolve slowly and it would at best take several years before any one of them would be ready to be admitted officially into the I.A.D.R. Only future developments would determine the manner of organization that would be best suited for this purpose.

This same type of organization is likely to serve as a nucleus for a research section in places where research sections have not yet been established.

6. *The War Efforts and the I.A.D.R.* The biggest challenge that confronts our Association today is to meet successfully the great responsibility that the War has placed upon us. First of all, each one of us individually and collectively is eager and ready to perform those tasks and duties for which we are best qualified. I am sure that I voice the unanimous consensus of our membership in affirming that the total resources and capacities of this association are at the service of our Government and the Allied Cause. We have the further responsibility of carrying on basic as well as applied research and of maintaining its continuity during this period when a large portion of Europe and the rest of the world is held under a dictatorship which has not permitted freedom in research but instead has exiled or placed in concentration camps many of the world's greatest scientists. Dr. Hatton reports that he has not heard directly from the majority of sections outside of the North American Continent. These sections will be rebuilt and will need our help. We must be prepared for this opportunity to do our share in the task of winning the peace after we have won the war.

II. INTRODUCTION OF THE PRESIDENT ELECT

Leuman M. Waugh, D.D.S., School of Dental and Oral Surgery, Columbia University, New York, N. Y.

At the annual meeting in Cleveland it became my pleasant privilege to present an incoming president. He was the founder of the International Association for Dental Research. The organization meeting took place in this, the Columbia University Club. There were present twenty one chosen dentists who became the founder members.

Tonight it becomes my privilege to say a few words about another incoming president. He was not eligible for founder membership because he did not then reside in the New York area. However, he has the distinction of being the first *elected* member of the Association and more, he presented a research paper at the first meeting held. We assembled in this very room for dinner, some forty attending, and then convened just across the street to the old Academy of Medicine building for the scientific session. A large and representative audience awaited him and J. Leon Williams who shared the program of the evening. Thus was the International Association for Dental Research first introduced to the dental and medical professions in New York.

Dr. Charles F. Bodecker was born and reared in New York City. His summers were spent on the south shore of Long Island where water sports, with boating and sailing, became his boyhood hobby,—a hobby which has persisted to this day. After years abroad, it is pleasant to relate that he has acquired some of the family acres of his boyhood where he now weekends and spends his summers. Central Park was his city hunting grounds and many hours did he spend there, playing cops, hunting robbers and shooting Indians. His father, C. W. F. Bodecker, was a prominent dentist with an urge for research. He

wrote a book of over 600 pages entitled "Dental Anatomy and Pathology of the Teeth." He served also as Professor of Embryology at the University of Buffalo.

With this background and seventeen budding years to *his* credit, our young stalwart presented for matriculation at the University of Buffalo. It was here that we first met. He was big, he seemed shy. The Dean called him by his first name on the first day, much to the envy of his classmates. We thought he might hold himself aloof, coming from the great city of New York while the rest of us came from the "sticks" in Western New York. Our error, however, was discovered the next day when the junior class tried to show us freshmen who would run the Dental School. He loved nothing more than a friendly scrap, with classmate, upper class or the medicos.

Soon after he returned to New York I was asked the name of the research worker at Columbia University with the clergyman speaking voice. After casting about, I mentioned him; he was the one. I soon said that he was not like a clergyman but rather like the proverbial minister's son, for he could engage in more boyish deviltry, such as swiping bicycle racks, barber poles, large thermometers from outside drug stores, et cetera, than any man in the class. He often had me worried for we lived in the same house. But he was also diligent and capable and was graduated in 1900 with the degree of D.D.S. He was under age and had to wait for over a year to get his diploma.

His father and brother moved from New York to Berlin, Germany during his college course, establishing themselves there. He joined them upon his graduation. From 1900 to 1904 he continued his studies in natural sciences at the University of Berlin, engaging in research in the hard structures of the teeth. In 1902 the New York State Board examinations brought him back to America, whereupon our studious companionship of college days was resumed. The State Department of Education must have run out of gold seals, for his certificate had a purple seal and was inscribed "With Honor." Practice and research in Berlin again claimed him. This time his problem was the one in which his father had engaged for some twenty years. He sought to prove the physiologic relation of teeth to body as a whole, which concept was not then popularly believed. It is told that the intolerant and scoffing attitude of some fellow researchers so hurt the elder Bodecker that it was the deciding factor in his removing from New York. Be this true or not, it is a fact that he never again did microscopic work. Imagine the satisfaction to the father of his son's choosing to carry on in this field!

He continued his research with increased intensity and is *still* carrying on. In substantiation of his father's theory, three points especially stand out: A. Establishment of an organic matrix in dental enamel. B. Determined true presence of and named the "enamel lamellae." C. Finally proved presence of dental lymph in hard tooth structures. In 1912 he again visited America and gave me an autographed reprint of his then recent research report, a document I have always treasured and retained. We remember vividly our discussion concerning the x-ray and the detection of caries. It was the first time

my attention had been called to it. Now almost every dentist discerns caries by means of bite wing films.

He had always maintained American citizenship and in 1922 he returned and established himself in practice here and began teaching at Columbia University as Assistant Professor of Dental Histology and Embryology. He was elevated to Associate Professor in 1924 and to the full professorship and Chairman of the Research Committee in 1926 which positions he continues to fill. He was elected chairman of the Scientific Research Committee of the Dental Society of the State of New York in 1926, a position he has held ever since. He was appointed the State Board Examiner in Histology and Embryology in 1932, another position he continues to hold. He has made 1114 contributions to dental literature, including two text books. He is a member of Xi Psi Phi Fraternity, Omicron Kappa Upsilon and Sigma Xi.

Dr. Bodecker was signally honored in 1935 by the Dental Society of the State of New York in being made a "Fellow" of the Society and in being awarded the William Jarvie Medal in recognition of his "distinguished services to the science and art of dentistry." He is an active fellow of the New York Academy of Dentistry and of the American College of Dentists; associate fellow New York Academy of Medicine; honorary member, W. D. Miller Club of Berlin; fellow of American Association for the Advancement of Science; fellow of New York Academy of Science; active member of the First District Dental Society, State of N. Y.; the Dental Society of the State of New York, and the American Dental Association. His residence is Journeysend, Center Moriches, L. I. and his office address, Columbia University School of Dental and Oral Surgery, 630 West 168th Street, New York.

Fellow members, ladies and gentlemen, I take particular pleasure in calling upon our new president to now take over. May his year be one of unusual success.

III. INAUGURAL ADDRESS

Charles F. Bodecker, D.D.S., School of Dental and Oral Surgery, Columbia University New York, N. Y.

The report of the retiring president, Dr. Schour, embraces a number of excellent suggestions for the future policy of our Association. I should like to elaborate only on two of these recommendations.

His suggestion that sections of the International Association for Dental Research be founded in South America is good. Quite a number of South American investigators, many connected with teaching institutions, are active in worthwhile research. I, therefore, second the recommendation of Dr. Schour that an attempt be made to found sections of the International Association for Dental Research in South America.

Another suggestion of Dr. Schour deals with the formation of student research groups in our Schools. It is evident that our past president has been highly active in stimulating an undergraduate interest in research, realizing that

the present student body will have a determining influence on the future progress of the dental profession.

Here we have attacked this problem from a number of angles. The advantages of the senior thesis need not be described as it is used commonly. Another angle of approach was made by B. O. A. Thomas who organized an abstract society last fall, which group has had highly successful monthly meetings. The committee selects a number of recently published articles which are abstracted by senior students. The abstracts are mimeographed, 88 of which have appeared up to date, and presented at monthly meetings, one member of the teaching staff being selected to discuss each of the papers. A senior student acts as chairman and conducts the general discussion.

This method has shown the following benefits: 1. The student abstracting the article gains a permanent interest in the subject and will follow any further developments in the literature with intense interest. 2. The attending undergraduates of all classes will be stimulated by the fact that much research still is necessary to solve the pressing problems of dentistry. 3. The members of the teaching staff attending such abstract meetings will obtain information concerning topics which often are outside of their own field and thus widen their viewpoint and awaken them to the progress of research. The fact that many students voluntarily attend such meetings, after completion of their prescribed daily work, shows that their interest is truly awakened by this type of activity. I, therefore, heartily recommend this plan for a more universal adoption.

The writer of a president's report is in a unique position, inasmuch as he has two distinct advantages over most other speakers. He has complete liberty in choosing his subject and is assured that the majority of his audience will remain.

Many members of the International Association for Dental Research have listened to reports for some thirteen hours during the last two days and it is only natural that they should wish to relax and not be bored at this, the concluding session of the meeting. Consequently your speaker will not mention his own work, great as is the temptation to do so, but will confine himself to some generalities. These will be very brief.

Research may seem somewhat futile and unimportant during this time of stress. The present happenings probably will influence future living conditions but it should be a solace to this group of investigators that scientific discoveries will far outlive the overthrow of foreign governments. Science is necessary to the progress of the world, inasmuch as it leads to a more complete eradication of disease and a better comprehension of life.

A scientist's work progresses best if his mind is free from worry but this is an almost unattainable state after reading the daily papers. But he need not necessarily do this because his work is not dependent upon the details of the world's happenings. A business man, on the other hand must keep in touch with daily events, because these may affect his dealings. A scientist can live an entirely different kind of life and he should not be blamed if he segregates himself from the world's affairs; for only by isolation can most men give undivided attention to research.

Our particular subject of this discussion is research activity. A frequent criticism of laboratory research is that it is mostly impractical and consequently some persons believe it to be of little value. Such an opinion, we all know, arises only from a partial knowledge of the facts. It is true that many research reports do not have any immediate practical applications, yet the store of knowledge is increased by such discoveries and the horizon is widened so that later, it is often possible to make practical use of these research findings. An outstanding example is the discovery of the principle of the "Thermos" bottle. This idea was used in laboratories for many years, as, for instance, to preserve solid carbon dioxide gas for use in a freezing microtome. Later the public benefited by this principle so that foods could be kept hot or cold for long periods. The pity is that the discoverer of this principle gained no financial benefits, while others, who merely realized that people liked intensely hot or intensely cold foods on picnics, reaped fortunes from the practical application of this scientific discovery. There are many similar examples in which men have benefited financially by the discoveries of others.

The reason for bringing up this subject is that the researcher in the dental field often has a golden opportunity to make his work completely practical. It is regrettable that all too frequently this opportunity is allowed to slip by. The laboratory scientist engaged in certain dental problems can best apply his work clinically by having personal experience with oral conditions. It is for this reason that dentists who concentrate on a research career should not completely forget the dental clinic. The major problems of dentistry—dental caries and periodontoclasia—probably would be nearer a solution today if the clinical picture of these diseases had been examined and classified more critically by the laboratory researcher.

Many investigators in the dental field have no dental qualifications. In this case a collaboration with a competent clinician often brings results. A linking of the fields of theory and practice has been used more often during recent years resulting in interesting and valuable observations.

The motive which actuates men to select a research career is interesting. Success in research depends upon the characteristics of the persons engaged in conducting it. Naturally a young man or woman who wishes to enter research should be fitted for the job, and should have fundamental training in the subject. The successful research worker must be able to think logically, he must be well-balanced mentally, he must be critically skeptical but open to conviction. He must be honest with himself and willing to continue work in the face of criticism. He must be willing even to sacrifice financial gain to some extent. Many men who have made creditable contributions to research have not had all of these qualities at the outset, but have developed them. Older men often lacked university training and acquired their knowledge only by intensive home study.

It is true that the above mentioned qualities are possessed by many who do not turn to a research career. Often the research bent is apparent very early in life; it shows itself even in children who ask their mothers countless questions.

I know of a case of a boy of twelve who took his watch apart, and when the main spring jumped out with a buzz, was satisfied that he had discovered the power which made it tick. At four years of age he cut into an expensive drum because he wanted to see what made the noise. This inquisitiveness is the first indication of a possible research candidate. However, many children are inquisitive and yet do not develop into investigators. The fault, or should we say the merit, lies in their parents, who discourage anything so impractical as research. Boys and girls are taught that financial benefits are far more important in life than the ideals of research. Many persons lack the essential motive for a research career, the wish to add their contribution toward alleviating the world's suffering or improving human welfare. Some researchers ridicule the thought that idealism is a power which drives an investigator in his study. These rather cynical critics believe that the research field is just like any job by which a living can be made. Some investigators may have this rather disparaging conception, but certainly not those men and women who had the free choice of selecting research or a more lucrative occupation. Those who select research under these conditions indeed are actuated by idealism.

This idealism was evident in Walter Reed, head of the American Yellow Fever Commission, who determined the cause of the disease and brought this dreaded plague under control. His work and that of his associates was the means of saving countless lives, and much suffering. Paul de Kruif in the "Microbe Hunters" quotes from a letter which Walter Reed wrote to his wife:

"The prayer that has been mine for twenty years, that I might be permitted in some way or at some time to do something to alleviate human suffering, has been granted."

Some of the qualities have been mentioned which the ideal and able scientist should possess. On this occasion we wish to discuss only one of these, i.e., skepticism. Researchers may be divided into three groups on the basis of this quality: 1. blindly skeptical, 2. critically skeptical and 3. the gullible researcher.

Skepticism is a most important safeguard in research, because without it many a wrong observation or unsound theory would be accepted with subsequent loss of time and labor and the confusion of the final issue. However, skepticism can be overdone. The following is an example of the blindly skeptical investigator. A conference was held at which three investigators presented certain evidence to a man in an influential position. After about two hours, the latter became impatient and said, "I don't care how much evidence you have, you cannot make me believe it." This statement shows that a man can be wilfully engrossed in his skepticism to the detriment of progress and of his position.

Some persons like to be known as highly critical; this attitude is perfectly right and proper. But they frequently criticize material without having any specific knowledge of the subject. This is a mistake. Often those who pride themselves on their skepticism are at the same time most emphatic in the claim of possessing an open mind. They condemn men who make observations which apparently refute accepted theories and say they are "hipped" on their subject. An analysis of this "closed mind" skepticism shows that such a man may readily

himself be "hipped" on his particular pose. His attitude is frequently as harmful to progress in research as the other extreme type, the gullible investigator. The point is that skepticism is necessary, but it should be a *critical* skepticism, not a skepticism based on a blind prejudice. Anyone can and should criticize research reports *providing* they have studied and comprehended the evidence which forms the basis of the report. If he has no firsthand information on the subject, the self-imposed skeptic has no right to say: "I do not believe it;" he only can say: "I do not know."

An amusing example of group skepticism is cited by Paul de Kruif in his "Microbe Hunters." It was after Walter Reed had demonstrated clearly that the mosquito was the carrier of yellow fever. He stated in 1900:

"But still there came learned doctors, and solemn bearded physicians, from Europe and America, asking this, questioning that—and one morning fifteen of these skeptics were in the mosquito room of the laboratory—oh! they were from Missouri! 'These are remarkable experiments, but the results should be weighed and considered with reserve' et cetera. Then the gauze lid came off a jar of the she-mosquitoes (of course it was by accident) and into the room with wicked lustful eyes on those learned scientists, the *stegomyia* buzzed. Alas for skepticism! Away went all doubts! From the room rushed the eminent servants of knowledge! Down went the screen door with a crash—such was the vehemence of their conviction that Walter Reed was right. (Though it happened that this particular jar of mosquitoes was not contaminated.)"

IV. INDEX OF PARTICIPANTS AND SEQUENCE NUMERALS OF CORRESPONDING ABSTRACTS

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