The Angle College of Orthodontia and the Establishment of Graduate Work at the University of Illinois

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I have been asked to talk to you this morning at the beginning of this, the first meeting of the graduates of the Orthodontia Department of the University of Illinois and to tell you something of Dr. Angle, the beginnings of Orthodontia and the background of this department. I have been asked to do this probably because I knew Dr. Angle very well over a great many years and was associated with him in many of his efforts.

Dr. Angle was a very unusual man; a strong man of great energy and with an enormous punch; one with violently conflicting ideas and emotions. Look at the portrait of him in the department which was painted by his friend Professor Wuerpel. Look at that long upper lip and the set of the mouth and the ruggedness of the nose. The artist put the character of the man into the painting. Dr. Angle never liked it very well, probably because it looked too much like him. He preferred a portrait which Mrs. Angle had had painted of him and in which the artist smoothed the conflicting ideas and emotions and softened the ruggedness.

How many of the men in this room ever saw Dr. Angle? Three, out of the seventy-five or more in the room. To the rest of you Edward H. Angle is just a name and you must get your ideas of the man from his writings. It is always important and sometimes essential to know a man in order to get the meaning of his writings. This was, I believe, especially true of Dr. Angle. I have sometimes said that he was the most tragic character I ever knew because he was made up of such diametrically opposed characteristics and these were always at war in his personality. With children he could be as gentle and tender as a woman, and he could be as cruel a brute as ever lived with men. He was the most generous and out-giving of men at times and at others he could be as stingy and pernurious as a New England Yankee. He was a genius, especially a mechanical genius, with all the characteristics of genius. He was not a scientific student though he was a great student of science. He knew anatomy and histology but he interpreted them in terms of mechanics. He often referred to the osteoblasts as the little hod carriers, and the fibers of the periodontal membrane were the ropes that sustained the tooth against the forces of occlusion. He thought of them not so much as living active things but in terms of what they did and how they sustained their functions. His mind did not work like that of a scientist, by careful reasoning from carefully defined premises and observed facts to well sustained conclusions, but like the mind of a genius. I have often heard him say, "I thought about this, and thought about it and lay awake nights thinking about it and all of a sudden, like a flash out of the dark, the answer came to me and I knew it was right." It was right. But he could not follow the processes of his subconscious mind by which he had reached his conclusion and consequently could not defend it. When he presented a paper before a society and someone assailed

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his ideas with elaborate quotations from the literature and the citing of authorities he could not argue. All he could do was to cuss at them, and call them God damn fools, which they probably were, and they didn't like it. He was a great teacher but he was not at all like many great teachers, men with whom the student sits down and discusses a subject. In order to get what Dr. Angle had to impart, the student had to listen and take, or at least appear to take, what he said without question. He might then go away by himself and think about it until he reached a point that was not quite clear. If he was brave he might then return and ask a tentative question to set himself straight.

He worshipped perfection, mechanical perfection, perfection of detail and finish. He had a Japanese vase that used to stand on his mantle and he would point to it and say, "See the artist didn't even fail to put in the worm holes in the leaf." Brown, the painter of the street urchin, was one of his favorite artists. He would say, "See how every detail has been given, the perfection of the buttons on the coat and even every hair." He liked the early landscapes of Turner, where one could see every blade of grass and count the leaves on the tree, much better than his later work after he became an impressionist. He was not appreciative of paintings in which one did not see detail but which might inspire an uplifting idea or emotion.

I first met Dr. Angle when he was practicing general dentistry in Minneapolis. Between the sessions of college I was doing laboratory work for Dr. Martindale and operating a dental laboratory, soliciting business from the dentists in the same building. Dr. Angle, being nearby, brought several dentures for me to repair. On the morning of the last day I was there, he brought in a broken lower plate which I attempted to repair. It was made of poor rubbers and had been revulcanized several times. It went all to pieces in the vulcanizing and when I took it from the flask it was ruined. To take that back to him was one of the hardest things I ever had to do. I told him I was terribly sorry and that I could not stay and fix it for him. It would have to be entirely remade and I was leaving at 8:00 o'clock to go back to Chicago. He said, "This might have happened to anyone, what do I owe you?" I told him $1.35. He pulled out a ten dollar bill and handed it to me saying, "Man cannot live by bread alone." That paid for my Pullman back to Chicago. After that I did a good many things for Dr. Angle in connection with the illustrations for his book and papers that he wrote and he always paid me more than I had asked. This was in the summer of 1892.

Dr. Angle was already interested in orthodontia although the science was not yet named. He said to me one day, "You know there are only three things you can do to a tooth to move it, you can push it, pull it or twist it. It would be easy to design a device to do these things. The main problem would be to learn how to use it." Prior to this time, it had been the custom for the dentist to invent an appliance for each case and this is probably the commonest method of procedure today. It was not long after this that his first set of appliances was developed and put on the market.

He believed that an appliance could be developed that would take care of all cases. The Expansion Arch E was his answer to the problem and until a relatively recent date it could probably be maintained that more cases were treated with this appliance than all others combined. Many men are still using it. It was and still is the best of teaching appliances because it necessitates clear thinking and a lively appreciation of the biology of the tissues.

During the latter years of his residence in Minneapolis Dr. Angle was teaching orthodontia at the University of Minnesota. This was his first teaching post, but it was not to be the last. Aside from the fact that this experience was not satisfactory to him little is known about this episode in his life. However, that his interest in orthodontia was growing, broadening and deepening is proven by the fact that it was in 1898 that he appeared before the Second International Medical Congress and read his famous paper on the Classification of Malocclusion.

This single paper is generally held to mark the elevation of orthodontia to the status of a science. Many classifications had been advanced before but all of them were so limited in their application that they were unacceptable to anyone except their authors. The classification proposed by Angle, based as it was on sound biological observation, swept aside all of the minor details that had clouded this question previously and firmly established in their place a simple and understandable concept. This concept was based on the normal occlusion of the teeth with every tooth in its proper relation to its antagonists and neighbors. The importance of each tooth, its inclined planes and its contact points, to the total denture was to become henceforth the foundation upon which orthodontia could build solidly in its development.

This paper, as I have said, was the beginning of scientific orthodontia, and the dentist now had a clear pattern, the normal occlusion of the teeth, with which he could compare abnormalities. The only point of contention that arose was over the correctness of assigning such great importance to a single tooth, the upper six year molar. Dr. Angle spent several years wrestling with this and in 1905 answered his critics in another famous paper, "The Upper Six Year Molar as a Basis for Diagnosis in Orthodontia". This did not settle the controversy by any means and the point was argued with more heat than light until very recently when scientific methods for its study were developed. These investigations have proven Angle to be very much closer to the truth than any of his critics.

This morning we are concerned primarily with Dr. Angle's educational efforts. After establishing himself in St. Louis, in the exclusive practice of orthodontia, and he was probably the first dental specialist, he took up his teaching again. He commuted to Chicago to teach in what is now Northwestern University Dental School. He was assigned a place in the Department of Prosethetic Dentistry. In his later years he was apt to say that he was just a carbuncle on the side of that pumpkin. This experience was no better than that at the University of Minnesota. The attitude of dentistry and of the dental faculty was that orthodontia was a rather unimportant side issue but required some recognition in the curriculum. Dr. Angle held that one could not study a subject without a textbook and that one could not do a good technical work without the proper instruments. He therefore required that the students buy his text and the necessary instruments for the laboratory work. He soon discovered that the students were not getting the textbooks nor the instruments. At the end of the course he gave an oral examination and announced that the students would be required to bring in their book and their instruments. Then he discovered that the students had chipped together and bought one text and one set of instruments and that each one in turn carried them into the examination. He reacted to this in his characteristic fashion. The next time, he sat at the table and wrote the student's name in ink in the text and

carved his initials on the handles of the instruments. There was immediately a howl from the student body to the authorities of the school. The latter took the position that Angle did this to promote the sale of his book and instruments and requested his resignation. These two experiences embittered Dr. Angle toward dental education and he decided to withdraw himself from it and train men privately in the manner that he felt was proper and that the subject demanded.

He never advertised for students but when he received an inquiry he wrote the applicant that he must first prepare himself by a thorough review of the fundamental sciences, anatomy, physiology, pathology and biology. The applicant usually thought that this was only a gesture. When he reported, however, and Dr. Angle found that he had not done any work he was sent away, to spend a year in concentrated study of these fundamental subjects as a preparation for the work. If such a one came back he gave him a thorough examination and if he found that the advice had been taken casually, he sent him off for good. In 1900 he offered his first private course and this was the beginning of the Angle School. There were four men in the course and it was repeated as often as a sufficient number of men offered themselves for training. He never accepted all of the men that applied. To each man he gave a personal interview. If he thought he was good material for the practice of orthodontia and the development of the science he was accepted. If he thought he was not of the right calibre he was sent away. And during the course, if he thought a man was not working as hard as he could, or not doing work to the best of his ability, he was promptly dismissed. This of course made him many enemies.

The early courses were of two or three months duration, but as Dr. Angle's own concepts broadened he kept increasing the time of study. He secured the best men he could get to direct the work of the students in anatomy, physiology, histology and biology and the relation of orthodontia to rhinology. He paid these men generously for their services. This used all of the fees of the students. Dr. Angle often, if not usually, contributed largely from his own funds. He never conducted the course for profit. He was never, however, an idealistic philanthropist; he realized that if he was ever to make any money out of the sale of his appliances he must train men to use them. And if the public was ever to receive real benefit from the practice of orthodontia men must be trained not only in a successful technique but also in the fundamentals upon which the practice is based. I think that Dr. Angle maintained his school in St. Louis until about 1908. In 1909 I took my training with him and by this time it was a three months course. I believe that this was the only course given in New York City. Sometime during this period he taught in the University of Pennsylvania but again he met with such indifference that he soon gave it up. 1910 found him in New London, Connecticut, where he was to remain until he moved to California in 1916. He gave up his practice when he left St. Louis and never practiced again.

The successful practice of orthodontia in most of the principle cities of the country by the men he had trained created a great demand for orthodontic service and this led to the establishing of a number of proprietary schools, many of which were very profitable. Dr. Angle's school was strictly a proprietary institution, but it was very different from most proprietary schools. In the first place he never advertised for students, and he was most exacting, even arbitrary in his requirements for admission.

In all cases the final test was a personal interview in which he decided whether he thought the man had the proper ability, enthusiasm and vision to develop into a good orthodontist and to make his practice a real professional one. Dr. Angle was devoted heart and soul to orthodontia and he succeeded to a remarkable degree in inspiring his students with his enthusiasm. Dr. E. C. Kirk, who was for many years Dean of the College of Dentistry of the University of Pennsylvania, once said to one of his students who came back from the Angle course, "What is there about this man Angle that enables him to take you ordinary guys, who were just mediocre students, and just average dentists and make you over into men full of enthusiasm and energy and eager to study and work." It was because Dr. Angle was devoted body and soul to the profession that he loved that he was able to put his own inspiration and enthusiasm into his students and open their eyes to great concepts.

Dr. Angle moved to California in 1916 because of failing health. Dr. James Angle, a recent graduate of one of the other private schools, was passing through Pasadena one day and called on Dr. Angle, of whom he had heard a great deal. He greeted Dr. Angle with the information that 'he too was an orthodontist'. With what must have been an amused twinkle in his eye, Dr. Angle invited James to step inside and visit awhile and James accepted gladly. At the end of a very humiliating two hours Dr. Angle asked, "Young man, would you like to *become* an orthodontist?" And James very humbly said he would. Whereupon Dr. Angle took him into his home for a year and lavished all of his attention and background on him. At the end of his training Dr. Angle set him up in practice in Santa Barbara.

James Angle was a man of great promise but unfortunately he was killed in his office by the Santa Barbara earthquake. However, he was instrumental, during his short professional career, in persuading Dr. Angle to take for training several other young men whom he knew. From this small nucleus the Angle College was reborn, so to speak. These young man succeeded in interesting some of the older men and a few new ones and they subscribed enough money to put up a very beautiful little building on the lot adjoining Dr. Angle's house. It was equipped with three chairs for clinical use, laboratory benches and a classroom. The course was of one year's duration and the choice of students was highly selective. The subscribers made only one stipulation, which was that no tuition was to be charged the student and no fees were to be charged the patient! The students bought all supplies.

During Dr. Angle's residency in St. Louis he became acquainted with Professor Wuerpel. You have all heard the story of that meeting from Dr. Wuerpel himself and I shall not repeat it here but I should like to emphasize the profound influence that Professor Wuerpel exerted on Dr. Angle's thinking. He lectured to all of Dr. Angle's classes for many years and always attended the annual meetings of the alumni. This bond has been maintained at Illinois through Professor Wuerpel's annual lecture trips to the department from which you have all benefitted. It is most fitting that he is with us for this meeting.

Early in his career, Dr. Angle dreamt of the time when orthodontia would be recognized as a separate profession. In the 1920's his interest was concentrated more and more on this effort. He succeeded in getting a bill introduced into the California legislature but it could not be passed.

It is interesting to note that what could not be done by law had been accomplished by education, for it now is generally accepted that a man is not qualified to practice orthodontia as an exclusive specialty without at least a year of graduate study after completing a dental course.

But because of Dr. Angle's interest in legislature his school was closed in 1926 and once again there was no place where training for the practice of our specialty could be obtained. Dr. Wright has painted a very clear picture for you of conditions that prevailed at the time of the closing of the Angle College. The status of orthodontia in the colleges of dentistry was not much better than it had been when Dr. Angle had sought to teach in them. The proprietary schools had not progressed beyond the three month mechanical training program. The question was in the mind of every Angel-trained man, "Is there no way by which the advantages of Dr. Angle's methods of teaching, his discipline, his concepts, can be preserved and advanced?" The establishment of another proprietary school was out of the question.

Faced with these conditions an effort was made to interest Dr. Carmichael, Dean of the Graduate School of the University of Illinois, in establishing a course of training in orthodontia at the graduate level. This would be a new departure in clinical dental science but Dr. Carmichael did not hesitate on those grounds. His sole insistence was that the work given actually *be* of graduate calibre, which meant that all control of courses be vested in the graduate faculty and all questions of policy be determined by that body. Successful completion of requirements would lead to the degree of Master of Science. The Board of Trustees authorized the course as laid out and granted a small budget, together with a salary of $4,500.00 for a half-time man to direct the work. For a year no man could be found. Finally, Dr. Allan G. Brodie accepted the task of developing a graduate department and the credit for the achievement goes without reservation to him. It should be a source of great satisfaction to him to know that he has created the outstanding department in the world.

Thus today we find that orthodontia, although back *in* the dental school, is not *of* the dental school. It is fortunate, however, that Dean Carmichael had the imagination to recognize the possibilities that lay in graduate education in this field at such an early date. Had the effort been delayed it is likely that the thread that Angle had woven would have been broken and remained broken for many years. The almost one hundred percent attendance at this meeting is sufficient evidence for anyone that you, the graduates of the department, realize its significance and are grateful that you have been a part of it.

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