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ORIGINAL ARTICLES

EARLY TREATMENT OF MALOCCLUSION*

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ORTHODONTIA of the permanent teeth will always be needed because of the neglect and procrastination that accompany inexperienced parenthood. It has lost its principal interest for me, because I see before me the possibility of preventing the necessity for such orthodontia, and because I see the possibility of helping to develop the enamel coating of the teeth in such a manner as will prevent the great prevalence of cavities that usually show themselves in childhood, and then, after protracted neglect, appear in adult life in the form of extensive cavities that require attention during the remainder of life if one wishes to keep even with the ravages of decay resulting from defective enamel in childhood.

All abnormalities among deciduous teeth indicate crowding *somewhere*, therefore enlargement of the entire arches of deciduous teeth is always necessary if we try to accomplish regularization of the incoming permanent teeth by using deciduous teeth to accomplish that result.

The second deciduous molars should be 35 mm. apart; 28 mm. as a minimum width is empirical and only to be adhered to until a more scientific pronouncement becomes possible. Narrow dental arches are always symptomatic of past or present arrest in development of the child.

We want to know if we can cause acceleration of development, so as to overtake in some measure what has been lost during the arrest. If so—how? And we want to know the best way to retain whatever development we shall have obtained, including any superdevelopment, which has hitherto been deemed unattainable.

It must be remembered that developmental processes always recommence,

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Fig. 1.—Case before treatment in 1912.

Fig. 2.—Condition of teeth in 1915.

Fig. 3.—Development of case in 1919.

Fig. 4.—Condition of teeth in 1920.

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Figs. 5, 6, and 7 —Facial development at the time model in Fig. 1 was made.

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Figs. 8, 9, and 10.—Facial development at the time model in Fig. 3 was made.

11.

12.

Figs. 11 and 12.—Showing the improvement from 1912 to 1915. Compare Fig. 12 with Fig. 13 for changes occurring from 1915 to 1919.

if they recommence at all, at the point where they left off or where they originally stopped.

There are three well-known means of aiding in the renewal of the developmental process.

Proper food and exercise is one method; the administration of thyroid or

13.

14.

Figs. 13 and 14.—Illustrating the development from January, 1919, to November, 1920.

Fig. 15.—Arches showing lack of development of patient age five and one-half years.

Fig. 16.—Same case as shown in Fig. 15 after one year of treatment.

other glandular extracts is another; and a mechanical spreading of the dental arches combined with the preceding methods is the third.

It is evident that growth should be promptly renewed in all cases of arrested development because the greatest growth of the brain takes place between birth and six years of age during which period the average increase in size of the brain should be 989 grams while during the period from six to nine-

Fig. 17.—Same case as shown in Fig. 15. Patient nine years two months.

Fig. 18.—Shows case at the age of twelve years after the second molars had erupted.

19.

20.

Figs. 19 and 20.—Side view of models. Fig. 19, patient at the age of five and one-half years. Fig. 20, patient at the age of six and one-half years.

21.

22.

Figs. 21 and 22.—Side view of models. Compare with Figs. 19 and 20. Fig. 21, patient at the age of nine years and two months. Fig. 22, patient at the age of twelve years and four months.

teen years of age, the average increase in weight of brain is only 40 grams.

If mechanical spreading is one of the methods adopted to promote the renewal of growth, this should be done if possible before six years of age; because the lingual root of the maxillary deciduous molar becomes so absorbed

Fig. 23.—Treatment begun at five and one-half years. Note progressive development to fourteen years of age.

Fig. 24.—Same case as Fig. 23. Note the increase in width in the region of the first deciduous molars as shown in first and second model. Also there has been no increase in width from the second to third model.

that this tooth, when moved, can no longer carry with it the crown of the premolar.

When the little undeveloped arches of the child are mechanically enlarged the very fact of their enlargement brings with it a stimulus to growth by the removal of obstructions to growth which have, up to this period, existed. The heart thus has freer action for its circulatory processes for the deposition

of bony matter, where heretofore there was no room, and for the enlargement up to normality of the adjoining bones and soft parts comprising nose and face and often even the orbital processes. Even the skeleton of the body below feels the impulse of the fuller circulation caused by an unimpeded heart action in an ample thorax.

Fig. 25.—Models showing progressive changes resulting from early treatment.

Fig. 26.—Three models of a case made at six, seven, and twelve years, showing changes resulting from early treatment.

The size of the child's brain at birth and the marvellous growth that normally occurs between birth and the sixth year, seems to call for all the added growth that we can procure in cases where we undertake to enlarge diminutive baby arches.

I present three cases illustrative of what I have read, all of them having been begun by using the deciduous teeth as instruments for spreading.

The third case is that of a little girl, one of several children in the same family, all begun and finished by using the deciduous teeth only.

DISCUSSION

Dr. Oscar Carrabine, New York City.—Dr. Bogue asked me to discuss his paper and be unmerciful in my attack upon him.

He said, "it is probably the last paper I shall ever write upon this subject."

If that is so gentlemen, we have had a special privilege here today that the future meetings of this Society will never have.

Dr. Bogue is the one man prominent in orthodontia, who has come out openly for treatment of cases before the sixth year.

As the years go by we will more and more realize the great value of this paper, and I feel that this paper is Dr. Bogue's heritage to future generations.

It is difficult to criticize anything he has said, whether he is right or wrong, time only will tell.

Dr. Lawrence W. Baker, Boston, Mass.—Dr. Bogue's paper is a masterpiece. I am not going to attempt to discuss it. I should not dare to change a thought of it any more than I should attempt to alter a line of Gray's *Elegy* or to add a stroke of the brush to a *Sargent*. It is a master message from the first generation to the fourth generation. I hope you young men, members of this fourth generation, will take these ideas and thoughts that have been advanced by Dr. Bogue and ponder them long and carefully, remembering in doing so, that Dr. Bogue is the father of early treatment, yes, he is the grandfather, or, to be more exact, he is the great grandfather of early orthodontic interference.

I well remember when I was a child that Dr. Bogue, on his pilgrimages to Boston, usually paid a visit to my father's home and then I had the rare privilege of sitting on his knee and hearing him discuss with my father the germ of the principles which he has expounded here today. Many of us older members present remember how his doctrine of early treatment was criticized, in fact, he was ridiculed and called a crank. But we all have to admit we have learned from him, and now regard early treatment as one of the foundation stones of modern orthodontia.

There is just one more thought I wish to voice, and I am glad Dr. Bogue is here to hear it, for it is this: if my little investigations on the influence of the forces to occlusion on the development of the skull, are of any value, we have to thank Dr. Bogue, for he stimulated me to carry on this work—he did not tell me to do thus and so, but it certainly was his influence that started me in this line of investigation.

Dr. Frank A. Delabarre, Boston, Mass.—As you may perhaps know, I have long been an adherent of the principles Dr. Bogue has presented to you this morning—the idea of early treatment of malocclusion. I will not bore you with any repetitions, but simply give you my impression of the presentation of today's paper by Dr. Bogue. I think it is very valuable. You are working in orthodontia to attain a result. What it is? The establishment of normal occlusion. I sometimes fear that you do not realize your opportunities or possibilities in the treatment of this disorder. The establishment of normal occlusion should be only an incident in the pursuit of your ideal. You should look farther and try to secure all of the benefits that may accrue to your patient through the establishment of normal occlusion, with a comprehension of their breadth and of the influence not only on the physical health of the individuals, but also on their mental caliber as well.

In studying Dr. Bogue's cases at his chair and in his office and reviewing the numerous models he has, covering a long period of years of treatment of individual cases, it has struck me that Dr. Bogue's appreciation is the important thing in undertaking a case for treatment, not only establishing normal occlusion but attempting to give the patient better physical health and a higher mental capacity. He has not worked alone, but has solicited

the aid of specialists in other branches of the healing art to help him in his work. This is a most broad-minded conception of his responsibilities toward his patients. There is no question whatever but what the results he gets in these respects are magnificent. I would emphasize in particular the wonderful changes that take place in the mental aspects of the case. In treating these children, if we can relieve them from the pathologic pressure in this particular region that is responsible for peripheral nerve irritations, as manifested in a small sense in the everyday disposition of the children in their relation to their associates, where they are cross and peevish and intractable, up to the more severe forms of mental disturbances that are expressed even in the insanities, we can accomplish much. These are phases of our work. It is well recognized that these local peripheral irritations cause these graver disturbances, and by removing them through the establishment of normal occlusion we get relief from St. Vitus dance, from epilepsy, from dementia precox, it makes our work more worth while; and I want you to appreciate that you are dealing not with the small problem of malocclusion alone, but you are dealing with the larger problem of the physiologic health of all the related organs and functions of the individual.

Dr. B. E. Lischer, St. Louis, Missouri.—I am entirely unprepared to discuss this very fine paper by Dr. Bogue. I am frank to say to Dr. Bogue in his presence, I believe the ideals that he has in mind and the work he has done along these lines are very much misunderstood and are not fully appreciated, and I think that as time goes on Dr. Bogue's work will rise higher and higher as a sort of mountain peak for us to look at, and we will all say: "After all, he was right."

I, like one of the other discussors, have undertaken to treat patients of four and five years of age only when they had severe deformities, when I felt a jaw deformity was imminent. I have in minor cases felt that we should let well enough alone and postpone treatment until some later time. However, I have never had a consultation of that kind but what I have strongly impressed upon parents that the case may need treatment, and in my opinion there will be an opportune time to treat the child, and that this *opportune time* must be decided by the man who is going to treat the case. And I always recommend regular visits of such cases to the office for subsequent observation.

Dr. Bogue has shown work here that opens up a new field of thought, because he has shown very clearly that these early treatments permit us to accelerate local development, which has a profound influence upon the general development of the child; and personally I want to thank him for his very interesting and instructive paper.

Dr. Edward A. Bogue, New York City, (closing).—Dean Smith, of the Dental Department of Harvard University, asked me one day to take his lecture hour to discuss Orthodontics of the deciduous teeth. Not a child's skull could be found in Boston, either in the dental or medical schools that had the alveolus cut away in front to show both permanent and deciduous teeth. I have had such a skull since 1894, and it furnishes much of the material that I have given you in this short paper. Fearing that skulls like this are scarce, I have felt a little shy of bringing some matters shown in that skull before a critical assembly like this, without the skull itself.

In 1917, three young men of my acquaintance were unable to pass the physical examination to get into the Army. Studying that skull led me to adapt appliances by means of which I spread the maxillary arch and nasal passages, and enlarged the thoracic cavities of all these three young men, and they all went into the Army. One lies dead in England. The two others have lately been at my house, and thanked me for what was accomplished in their behalf. The effect of these spreadings has been perceptible with all of them from head to foot.

The son of a surgeon was brought to me. I wanted to change his diet. The father replied, "Order what you like and you will get it." The mother had objected to any change in the boy's dietary, but acquiesced in what was asked of her. Some time later she walked in with her little girl saying, "I have come to tell you, in the first place, how grateful I am for what you have done for my boy. He has improved greatly mentally and physically. If you want impressions of my teeth, you are welcome to them, and my two

other children are at your disposal whenever you think best." I found the model of this mother's teeth only twenty-seven millimeters broad at the second premolar region across the upper arch. The arch of one of her children was broader than the mother's.

Now when I first began to notice, some years ago, that the width of the upper arch lay at the bottom of all plans for correction, I called Dr. Ottolengui to my side, and showed him the models of a case, and then showed him the models of the same case three or four months later. Dr. Ottolengui, you all know is a careful observer. He inquired, "Do you think for a moment that your little wire arches have caused all this spreading at this growing period of the child's life?" I replied by handing him a model of the same child taken exactly three years previously, together with a pair of compasses, and remarked, "You will please answer that question yourself, Dr. Ottolengui." He measured the model taken three years before, then the model taken three or four months before, and looked up in astonishment. There was not a hair's breadth of difference. "Now measure the one taken lately." He did so, and said, "There is more than a quarter of an inch greater width in these last few months than there was at the beginning, or three years earlier." From that time to this, I suppose, many of us have been keeping track of the widths of the various arches upon which we place our appliances. That individual case was spread too much, but the lips speedily brought the over-enlarged arches back into contact with the lower teeth. The prevailing fault with our orthodontic work on permanent teeth, is that we stop short of sufficient enlargement to allow for the extra growth that takes place between twelve and from eighteen to twenty-four years of age, after the wisdom teeth shall have made their appearance.

One of my professional friends said, "Dr. Bogue, I do not believe at all in the spreading of deciduous teeth before the permanent teeth shall have made their appearance. They ought to be watched carefully, yes, but I think spreading should all be done when the permanent teeth show that it is required." I replied, "Yes, my dear Doctor, we differ in this respect, you watch that child on the track of an approaching train very carefully, but do not undertake to pull it off the track until after the train arrives, while I pull it off before the train arrives."