

## Orthodontia By Exodontists\*

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In the June, 1932, issue of the International Journal of Orthodontia appeared an article entitled "*Orthodontics. Extraction As A Part of Treatment*," written by Harold Chapman, L.D.S., London, England. Many of you doubtless have overlooked this contribution to our literature and for your information I quote the following "Summary and Conclusion" with which the author closes his paper.

"Nonextraction as a principle to be followed in all cases of orthodontic treatment is neither scientific nor practical. In view of the difficulties and length of treatment, also the prognosis, nonextraction is not always in the best interest of the patient. Changes can be produced, improvements obtained and, to some extent, retained, but relapses are frequent, even though carried out in accordance with recognized principles. Relapses do not always take the form of the original condition.

"Some guidance as to when and what to extract has been given, but each case must be considered on its merits. The same careful attention to the detailed treatment of these cases, as has been given to those in which there has not been extraction, should lead to considerably increased knowledge and benefits to one's patients.

"There are many cases in which extraction is not indicated, i.e., it is definitely prejudicial to the result, but there are many in which the writer (I am still quoting) believes it to be the better course.

"Reports of successful and unsuccessful treatment both where extraction has and has not been performed are essential if the general knowledge of practical orthodontics is to be increased. Experience of actual results in practice is a better basis for treatment than any dicta.

"Many have extracted teeth in the belief or hope that the case would improve without anything further being done; many a time there has been no improvement. It must not be overlooked that very frequently extraction alone is of little use and that the technical difficulties necessary to treat the case satisfactorily after teeth have been extracted may be as great as if none had been removed.

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“On the other hand orthodontic literature tends to give the impression that any and every case, irrespective of any qualifications or conditions, can be successfully treated if all the teeth are retained and “normal occlusion” obtained; this is not so and the time has arrived to acknowledge it.

“Neither extraction nor nonextraction is a panacea; each has its place in orthodontic treatment. It is for the profession to find those places and to decide which teeth are the best to remove in particular circumstances.”

The author furthermore lays down rules for the correction by extraction of each class of malocclusion, using, almost irreverently, it seems to me, the classification as established by Dr. Angle. Stating that the “treatment by nonextraction of Class I has probably given the most disappointing results; treatment of Class II and Class III cases by nonextraction, but carried out efficiently at the proper age, has given very good results. The writer suggests as a reason that it is because the treatment of Class I cases involves enlargement of the maxillae, i.e. increasing the amount of bone, but the main treatment of Class II and Class III cases involves a change in the position of the mandible in relation to the maxilla i.e., probably effects some change in the condylar region or other area of the mandible. In Class I cases there is marked deficiency of bone; in Class II and Class III cases there may be little bone deficiency, particularly in the maxilla in Class II, Division 1 cases and the mandible in Class III. The deduction to be drawn is that the prognosis is better when the position of the mandible has to be changed than when the amount of bone has to be increased; the former is probably a true orthopedic operation and the latter an orthodontic orthopedic operation. The writer has no doubt that quite different changes are involved in the two operations.”

Under a paragraph entitled, *The Scientific Aspect*, we meet the old and once accepted statement that in Class I either the jaws are too small or the teeth are too large. This argument is ably answered by Dr. Strang in his recently published “*Text-book of Orthodontia*,” page 100, where he states that “the child is not made up of separate units that, as entities, duplicate similar sections of one or the other parent’s body, but rather there is a harmonious blending of both immediate ancestors and of preceding ancestors on each side of the family line. This is made possible through the mechanism of inheritance whereby various unit characters are passed on through the genes in the chromosomes of the male and female gametes which either blend, dominate or become recessive one with another, and so work their indistinguishable outward signs in the new being through the action of the somatic

cells which are the real tissue builders and carry out the dictates of a carefully preconceived plan which apparently is formulated when the ovum first begins segmentation.

"Then let us also bear in mind that the patterns, sizes and forms of the teeth were determined, and that they were built to conform to these specifications, long before the jaw form and size were evolved. Furthermore, every bit of evidence points to the concept that jaw growth is, to a great extent, the product of function, functional forces and the demands of function so that, while heredity determines the type of tissue form, the forces of function are necessary to produce the complete unfolding and evolving of this inherited type. Undersize in the bony structures of the jaw should be considered as due to functional perversions rather than to the influence of the laws or factors of heredity.

"And, finally, if this theory of large teeth and small jaws were true, it should work with equal frequency to produce the small teeth of the mother and the large jaws of the father, or the large hand of the father and the small arm of the mother and other similar disharmonious characteristics. The mouth certainly would not be the only place wherein such freakish tendencies would manifest themselves."

The author later states that "the classical treatment of such a case (Class I) is to enlarge the dental arches so that they will accommodate the teeth correctly. This presents no difficulty; it results from changes which are not understood and for want of a more suitable phrase may be expressed as a 'stretching of the bone' containing the teeth. When it has been accomplished, the teeth must be retained in their new positions, otherwise they would relapse toward their original places. If there were bone growth, retention should be unnecessary or less uncertain than experience shows it to be." In answer to this I refer him to the research work upon monkeys by Dr. Oppenheim.

We later find the author giving detailed instruction as to when to extract any one or more of the individual teeth in either jaw, beginning with the central incisor and fortunately ending with the first permanent molar.

A careful analysis of the foregoing would lead the thoughtful student to the disheartening conclusion that the science of Orthodontia, having passed through the Renaissance of the early twentieth century, was rapidly entering the Dark Ages of its existence, reversing historic sequence.

Can any of you gentlemen imagine a so-called treated case to be more grotesque than would result from first extracting the delicately shaped and

balanced lateral incisors and then replacing the loss by means of the tusk-like cuspids; or permitting a solitary central incisor to stand forth in the median plane quite like a grave stone beneath the shapely nose and high broad forehead; or a denture, deprived of cuspids because it would have been necessary to "stretch the bone" to accommodate them?

Allow me to quote from Dr. Angle's Seventh Edition of "Malocclusion of the Teeth,"

"Before beginning the treatment of malocclusion of the teeth there should be certain well defined principles fixed in our minds in regard to the dental apparatus as a whole, for we must constantly bear in mind the intimate relations existing between the teeth and all other tissues and parts of the dental apparatus, and the powerful influences they exert upon one another. We have seen that nature builds the human denture in accordance with her long tried and well-defined pattern; that this pattern, though varied in form, is in principle always the same; and that its variations are slight and always in harmony with the demands of the type of the individual.

"We have already noted that when nature, through certain adverse causes, is unable to fully carry out her normal processes in the building of the dental apparatus, there are, in the result, defects or variations from the fixed normal plan, shown by malocclusion of the teeth, with consequent impairment of their functions, the extent of the malocclusion being in direct proportion to the extent of the disturbing cause. Also, in the same proportion as malocclusion exists, will there be disturbance in the harmony and balance of the mouth with the rest of the face.

"The longer teeth remain in malocclusion the more fixed becomes the variation from the normal in all the co-related muscles and tissues. The tongue never having been permitted the normal freedom of a normal arch, doubtless also fails to develop normally, together with the muscles of mastication and those about the mouth, all becoming correspondingly modified in order to best adapt themselves to the established condition of the teeth. In like manner the nose, in size and function, is often modified from the normal.

"Logically, then, in the treatment of malocclusion our attention should be directed toward interpreting Nature's wishes and assisting her to carry out her original plan in the building of the denture, working hand-in-hand with her, for only as we comprehend her wishes in each individual case and assist her, will our efforts be successful in establishing the normal in occlusion and the normal in the balance of the mouth with the rest of the face. It should be obvious, then, to all thoughtful minds, that the demand in treatment should be the removal of all pernicious causes, the retention of the full

complement of teeth, and the compelling of their normal locking during or subsequent to their normal period of eruption, thus permitting nature to complete the denture according to her fixed plan and the demands of the individual type.

“The method so long followed by all the ‘old school’ writers of determining an arbitrary course of treatment for each individual case ‘according to the judgment of the operator,’ in which extraction is freely resorted to, and the size of the arches greatly reduced and their form modified from Nature’s plan and the demands of the type, has ever resulted, and can only result, in establishing the abnormal, deformity. By such treatment, instead of greater freedom being given to the tongue and normal function of the teeth, the former is often more restricted and the function of the latter, upon the whole, rarely improved; and instead of establishing balance, harmony, and beauty of facial lines, the deformity is ultimately more often found to be only modified, with a result even far less pleasing than the original condition. Dr. Davenport has well said, ‘In the treatment of our patients, it is hoped that if we cannot all see our way clearly upon this matter we may at least see far enough not to make the articulation worse by our operation than they were when brought to us.’”

In regard to mutilated cases Dr. Angle states;

“Yet many cases are presented for treatment in which there is a lack of the full complement of the teeth, through failure to develop, extraction, or caries. The demands for the great object to be accomplished, however, are the same in these cases as when the full complement of teeth is present, and necessitates the establishment of normal occlusion, or as near as the exigencies of the case will permit, by enlarging the dental arches to their normal size and replacing the missing teeth by artificial substitutes. While the ideal treatment may not always be deemed advisable, it is impossible to lay down any rules for such exceptions.

“The carrying out of the ideal in the treatment of such cases presents such apparently great difficulties that it would probably be almost the last one to which the amateur in orthodontia would naturally resort. He would be inclined to compensate for the already diminished size of one arch by reducing the size of the opposing arch still further by extraction. Yet the great difficulty of permanently maintaining the teeth in correct alignment when so treated must not be lost sight of, for it must be remembered that inclined occlusal planes, inharmonious as to size and form are thus brought in contact, with teeth, also, at incorrect angles of inclination, thus tending toward their displacement from wrongly distributed forces in occlusion, instead of occlusal planes harmonious as to size and relation with normal angle of inclination of

teeth, as intended by Nature, which favors permanency of normal positions and relations. Moreover, by the reduction of the sizes of the dental arches, the tongue and lips must exercise less control in keeping the teeth in correct positions than when exerting their full normal influence, as when the full number of teeth are correctly placed. Furthermore, the invariably detrimental effect on the facial lines, the shortening of the bite, and the impairment of speech, make this plan of treatment so objectionable that it is rarely indeed that the skillful, modern orthodontist would resort to it, for the great perfection to which the regulating appliances have been brought makes easily possible the enlargement of the dental arches and the regaining of the spaces for the full mesio-distal diameter of missing teeth. This fact, together with the ease and permanency with which the missing teeth are replaced, owing to the great advancement in modern prosthetic art, makes this the one plan of practice that will be most often preferred by the true orthodontist and more and more appreciated by him as his knowledge and experience increases; yet in the case of very young patients where there has been mutilation, it is often difficult to decide which of the two plans to follow, the serious problem hinging upon the result of mutilating sound teeth in order to restore the missing teeth by artificial substitutes. Still, if it were always possible to have these restorations made with a high degree of skill, with mutilations reduced to the minimum, the conservative, ideal plan of treatment would be almost universally desired." Dr. Angle further states on page 95: "The evil arising from extraction of the upper lateral incisors in order to provide room in the crowded arch for the canines are so apparent that arguments against the practice seem out of place in a modern textbook. The abnormal appearance given the face in the region of the nose consequent upon the diminished size of the upper arch, together with the carnivorous appearance of the mouth by the resultant prominence of the canine is as repulsive as it is inexcusable.

"Indeed the enormous prevalence of the practice of extraction of teeth by dentists of this and other countries is a reflection upon the degree of their comprehension of the science of dentistry. Radical reform in this respect ought to be instituted. The trivial excuses often given by men of high standing in dentistry for extraction of teeth are amazing."

Mr. Chapman states in regard to Class I, "that it is suggested that since Nature has provided thirty-two teeth they should be retained at all costs. Nature has not provided room for them; there is a discrepancy between the size of the jaws and that of the teeth; either the jaws are too small or the teeth are too large. The nonextractionists say that the error lies in the jaws and that such error can be corrected by stimulating bone growth with suitable appliances. But is it not as legitimate to say that the jaws are the correct

size and the teeth are too large? In fact this is the most reasonable assumption because the teeth are but the appendages of the jaws and therefore less important; jaws without teeth are very useful members, but this is not true of the reverse condition."

The foregoing is very aptly refuted by Dr. Noyes in his "Dental Histology and Embryology." Again let me quote:

"Relation to the Bone. The relation of the bones of the jaws to the teeth is entirely secondary and transient. The bone grows up around the roots of the teeth to support them, and is destroyed and removed with the loss of the teeth or the cessation of their function. In this way the development of the alveolar process appears around the roots of the temporary teeth. All this bone surrounding their roots is absorbed and removed with the loss of the temporary dentition, and a new alveolar process grows up around the roots of the permanent teeth as they are formed. This development of bone around the roots of the teeth leads to the changes in the shape of the body of the lower jaw, increasing the thickness from the mental foramen and the inferior dental canal upward. When the teeth are finally lost this bone is again removed and the body of the jaw is reduced in thickness from above downward. These phenomena have an important bearing upon the causes and treatment of diseased conditions of the teeth.

"From the dental standpoint it is important to note that the teeth are formed first and the bone is developed to support them. The use of the teeth through occlusion reacts upon the formation of bone. The study of anatomy, as well as direct experiment, has shown that muscular function, acting through occlusion, affects the development, not only of the bone of the alveolar process, jaws and face, but of the entire skull."

From the foregoing it logically follows that teeth placed in their correct relationship to skull anatomy, in their correct axial positions and correct cusp relationship will, by their very presence, under the action of the force of mastication, stimulate the necessary supporting tissue development, assist in the correction of faulty muscle habits and vitally aid in blending the masticatory apparatus into a harmonious, esthetic and normal functioning whole. This being the supreme aim of orthodontic treatment, the extraction of any dental unit is a compromise and hence more or less of a failure.

The treatment of most exaggerated cases of malocclusion in Classes I, II and III, without the sacrifice of any tooth units is routine procedure in the offices of so many orthodontists in this country that substantial proof of the fallacy of the extraction principle can be and is being offered continuously. Local conditions may make the use of advanced methods of treatment impracticable but they cannot alter fundamental laws. 30 Hanson Place