EIGHTEEN YEARS OF RESEARCH AT ILLINOIS (Cont.)

This brings us down to our present day concepts, of which you will hear more during this meeting. I should like to give you some idea of these concepts at this time in order to give you some sort of framework that will enable you to grasp more readily certain ideas that might otherwise seem quite foreign.

As a result of the interest aroused by the findings on the case of mandibular condylar resection as well as our conviction of the importance of the condyle in harmonious growth of the face, we have followed with intense interest the publications of the numerous men who have written on this subject during the past ten years. Rushton's work * as well as that of Sicher ** were particularly enlightening and were made clinically applicable by one of Thompson's recent papers *** which dealt with asymmetrics. The most recent study took advantage of longitudinal records and was titled:

*Rushton, M. A. Growth at the Mandibular Condyle in Relation to Some Deformities. Brit. Dent. Jour. 76:57, 1944.

**Sicher, H. Growth of the Mandible. J. Period. 16: 87, 1945.

***Thompson, J. R. Asymetry of the Face. J. Am. Dent. A. 30:1859, 1943.

CONDYLAR GROWTH AND MANDIBULAR DEFORMITIES

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The condylar area is characterized by intense chondral activity and subsequent ossification similar to that occurring in the epiphyses of a long bone. This activity is greatest during the fetal period and the early years, tapering to a standstill between the ages of 16 and 20 years. A major part of the downward and forward growth of the mandible is mediated by this center.

In the past several years over 25 cases have been seen in which there has been either unilateral or bilateral interference with the growth of this center. Unilateral arrests were most frequently associated with local trauma, arthritis or mastoiditis, and sometimes with ankylosis. Almost all patients exhibiting bilateral condylar involvement gave a history of juvenile rheumatoid arthritis.

The clinical picture is almost pathognomonic. Where one side is involved the lower third of the face is asymmetrical, the unaffected side appears flattened because of the deviation in growth to the injured side. There is a Class II occlusion on the affected side and the mandibular mid line is shifted correspondingly. A pronounced notch may be palpated at the body-ramus junction on the side of arrest. Because of its condylar attachment, the external pterygoid muscle on this side is generally inactivated with consequent impairment of function which is reflected in deviation of the jaw during movement. Bilateral involvements usually are characterized by a symmetrical deformity, the well known Vogelgesicht, with a severe Class II, Division 1 malocclusion and tendency for an open bite. The notching of the lower border is present on both sides. These patients usually have some limitation in the range of jaw movements.

The roentgenograms are more revealing. The underlying skeletal asymmetry is demonstrated where the injury is unilateral. The mandibular underdevelopment and the abnormal relation between it and the rest of the craniofacial complex are most clearly shown when both sides are involved. When compared with control material it is seen that the N-S-Gn angle is less acute while the S-N-Gn angle is more acute. The angle formed between the lower mandibular border and the cranial base is considerably increased. Laminagrams of the temporomandibular joints in these arthritic patients are characterized by flattening or erosion of the condyle and of the temporal surface of the joint with particular haziness, probably due to fibrotic changes.

Serial records over a period of several years were obtained in a few instances. Analysis of these indicate a striking deceleration of the incremental growth of the mandible without improvement of the dysplastic pattern; in one instance the deformity was progressive. The severity of the dysplasia was more pronounced when the onset was at an early age, during the period of rapid growth.

The growth disturbance resulting from the arrest is not corrected either by orthodontic treatment or by surgical procedures. However, these measures may yield a degree of cosmetic improvement.

Any surgical interference in the temporomandibular joint area should be undertaken most cautiously and only after serial observation of the patient has shown that growth has ceased. Otherwise there is a danger that an additional arrest will be superimposed on an already retarded growth center.

The opportunity of following cases of this sort as well as other types of congenital deformations has led us to the conclusion that the abnormal pattern is just as stable as is the normal unless some specific site or sites of growth have been permanently damaged. In the latter event the pattern continues to be further distorted until growth ceases.

This concept has led us to view the problem of the cleft lip and palate defect in a new light and it offers considerable hope for a more satisfactory method of management of these cases. You will hear more of this in a paper to be read later in this meeting.

This concludes the presentation of the research reports but I would be

remiss if I were to close without tendering my warmest thanks to the many men who have collaborated in its preparation and arrangement. Each responded promptly to the call and all material was in my hands well in advance of the meeting. I hope they have experienced a feeling of satisfaction from the knowledge that each one has contributed a definite part to the advancement of our orthodontic background. If all of you have followed the presentations with the intense interest that your close attention would indicate you have noted how the solution of one problem seems always to pose new problems. Also you will have gained some insight into the reasons behind the enthusiastic labors of the staff and understand its feeling that the past eighteen years have flown like so many months.