Case Report A, Class II Division I (Angle) Malocclusion in the Treatment of Which Four First Bicuspid Teeth Were Extracted*

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THIS PRESENTATION is concerned with one case report, an Angle Class II, Division I, in the Orthodontic treatment in which four first bicuspid teeth were extracted. Illustrations are presented to show the status of the case prior to treatment, after the removal of all appliances, and then again about one year later. Following this, the oriented photographs (1) of several Class II, Division I, cases, all treated by extractions, are shown to illustrate the facial changes wrought by treatment, remembering, of course, that there is no way at present to definitely determine what part or portion of these changes may be attributable to growth.

The patient; male, 14 years of age, height 5′ 7″, weight 128 pounds, and in apparent good health. He had mumps, chicken pox, measles and whooping cough at, or prior to, three years of age. He was breast fed, walked at 13 months and his deciduous teeth began to erupt at six months. Tonsillectomy was performed at 12 years of age.

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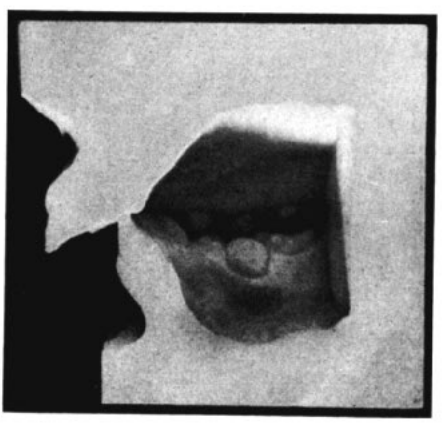


FIG. 1. Sagital Sectional cast before treatment (devised by Dr. Samuel J. Lewis) (2).

The lower incisors are in marked labio-axial inclination.

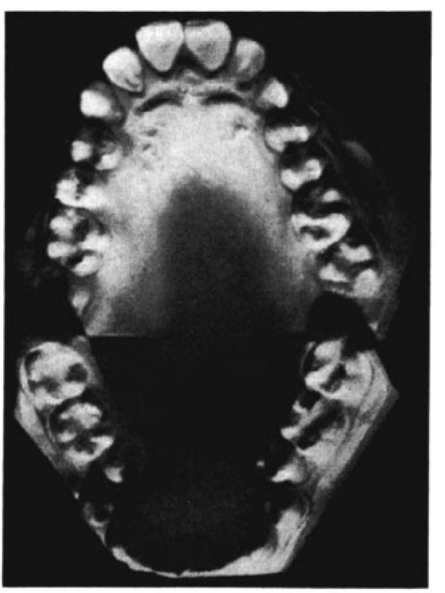


FIG. 2. Original casts—occlusal view.

The right and left lower second bicuspids are in lingual version with a lack of space for their eruption into the line of occlusion.

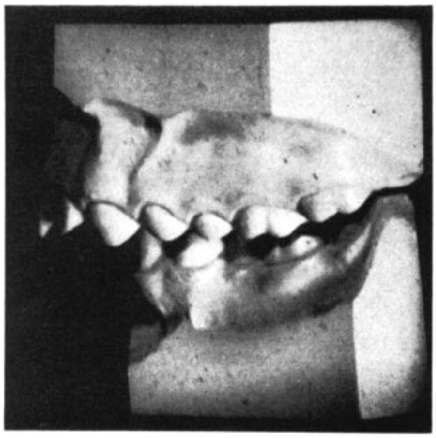


FIG. 3. Original cast—left side.
On the left side there is a distal occlusion the width of a bicuspid.

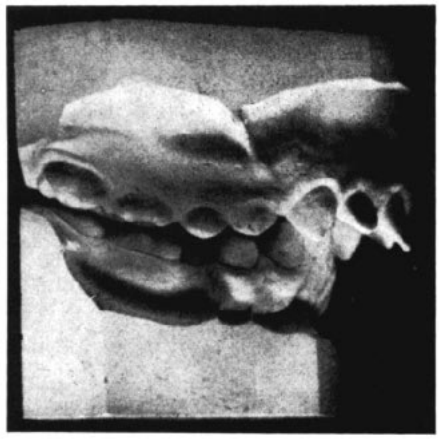


FIG. 4. Original cast—right side.
And on the right side, if the lower molars could be set back to admit the locked out lower right second bicuspid, there, too would be a distal occlusion the width of a biscuspid.

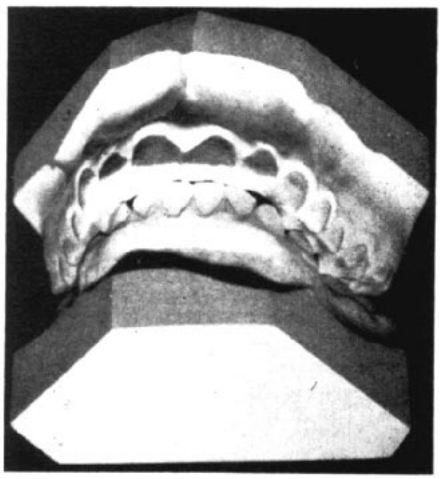


FIG. 5. Original cast—front view.

The lower incisors are biting into the palate and in the incisal area there is an upper incisal overjet of approximately 12 m.m.

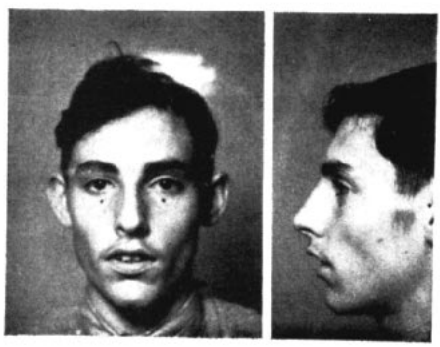


FIG. 6. Original photographs.

The face shows a protrusion of the lower lip and a more marked protrusion of the upper lip, and the photographs tend to show mandibular retrusion. The Frankfort Mandibular Plane Angle (3) is 24°.

It was decided to remove four first bicuspids in treatment for the following reasons: 1. The marked labial axial inclination of the lower incisor teeth or, as some would suggest, the relationship of these teeth to their base. 2. It was felt that the entire lower denture could not be moved distally. 3. It was felt that expansion, for the purpose of lining up the mandibular teeth, could not be maintained.

October 29, 1942 Impressions and photographs taken
November 27, 1942 Bicuspids extracted
December 3, 1942 Appliances placed
February 15, 1945 Appliances removed
February 24, 1945 Positioner placed
June 11, 1945 Positioner removed
May 23, 1946 Last impressions and photographs

Appliances Used and Stages of Treatment

After the four first bicuspids were removed, all molars, second bicuspids, and cuspids were banded. Sectional Kesling loop arches were placed and activated. After the cuspids were in contact with the second bicuspids, bands were placed on the incisor teeth and .016 full arches with Kesling loops were placed and activated. When all of the anterior spacings were closed, the size of the arches was increased up to .022 and then replaced by rectangular arches. Tip backs were placed in both arches and Class III mechanics was instituted to develop mandibular anchorage, after which the process was reversed and Class II mechanics was placed to adjust the mesio-distal relationship and an effort made to develop the mandible forward.

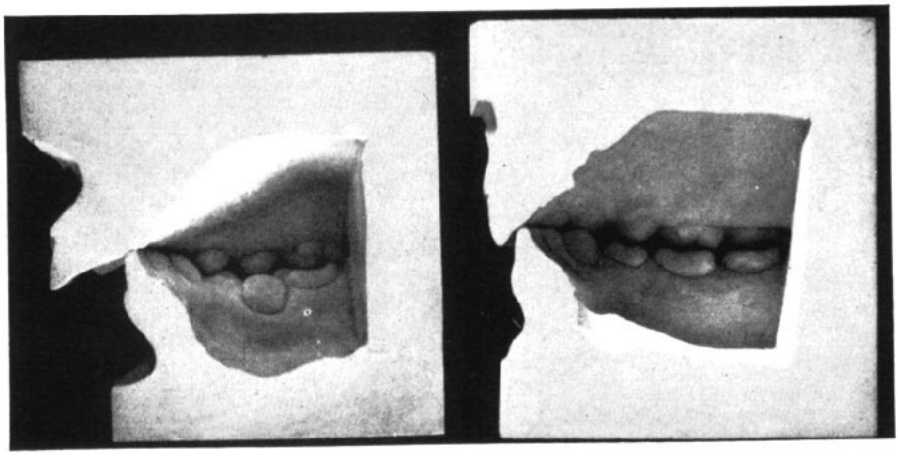
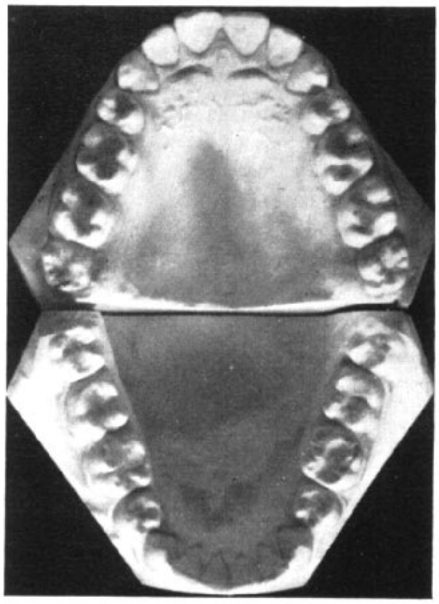


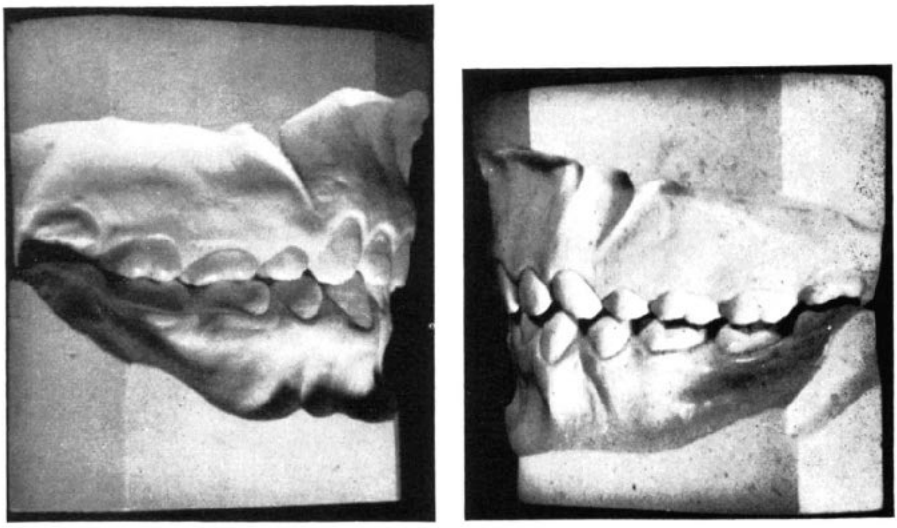
FIG. 7

A. Prior to treatment. B. After treatment.
(Sagital Sectional casts—devised by Dr. Samuel J. Lewis)



The lower incisors are relatively upright as to axial inclination and apparently as to mandibular base.

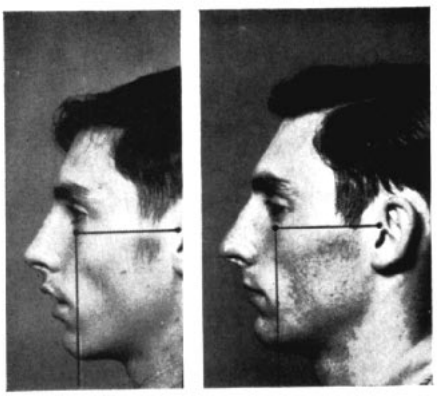
FIG. 8. After treatment—occlusal view. Proximal contact of all of the teeth appears to be excellent and well maintained.



A B

FIG. 9

Cuspal interdigitations appear to be mechanically correct. The axial inclination of the upper cuspids seems to be slightly at a distal inclination. The last models indicate an improvement in both cuspal interdigitation and axial inclination; this all attained since all appliances have been removed. A. After treatment—right side. B. After treatment—left side.



A B

FIG. 10

Photographs oriented on the Frankfort, Horizontal and Orbital Planes, prior to (A) and after treatment (B).

Measurements of the original and final photographs (Fig. 10), which are oriented and taken by Simon's gnathostatic method, indicate that pogonion, the most forward point on the mandible, has been brought forward approximately 1½ m.m. and, because the photographs are one-quarter life size, pogonion would be 6 m.m. forward at life size. The most forward portion of the upper lip has been carried posteriorly approximately 1 m.m. on the photographs and, therefore, 4 m.m. at life size. The most forward portion of the lower lips appears to be in approximately the same position but, as indicated by the position of pogonion, the mandible appears to have moved forward. It, therefore, follows that the most forward portion of the lower lip is in a distal position as related to the mandibular bone. All of the measurements on the photographs were taken from the orbital plane of Simon, passing through the orbital point at right angles to the Frankfort Horizontal Plane.

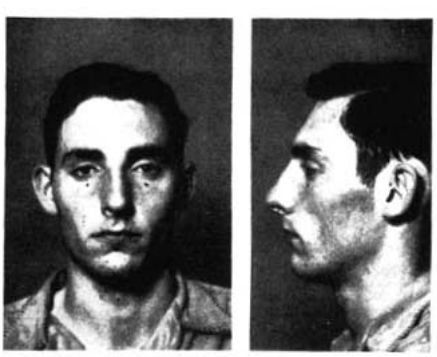


FIG. 11. Photographs after treatment.

The general effect, as indicated by the photographic change, is one of a more harmonious facial balance.

RADIOGRAPHICALLY AT THE END OF TREATMENT

Radiographically the upper cuspid roots appear to be in a more forward position as related to the roots of the second bicuspids and the roots of both appear to be somewhat divergent. The same applies to the lower cuspids and bicuspids. Greater care in treatment to this detail could make the cuspid and bicuspid roots more parallel. Along these lines, it is sug-

gested that the procedure followed by Dr. Samuel J. Lewis (4), namely, that of placing a tip forward bend in the mandibular arch in the cuspid bracket area in conjunction with Class III elastics would definitely tend to parallel the bicuspid and cuspid roots. One might also carry the sectional arch through the brackets of the cuspid teeth so that the cuspids might move distally in a more upright position.

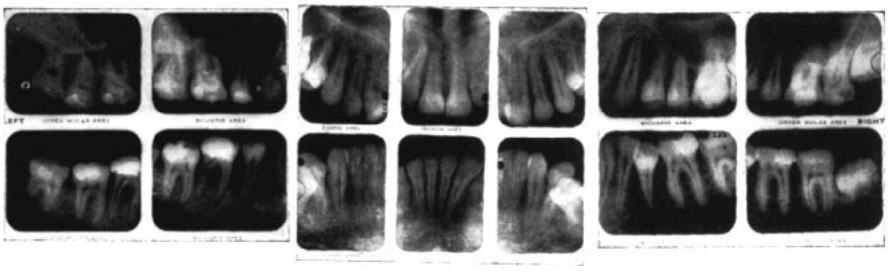


FIG. 12. Prior to treatment.

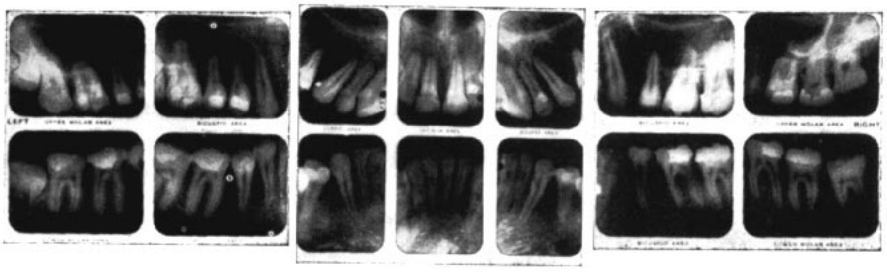


FIG. 13. After treatment.

One of the details observed when using this method of treatment is that the faces of the patients seem to improve after all appliances and retention have been removed.

FIG. 14

A. Front view — prior to treatment.

B. After removal of all appliances.

C. One year after removal of all appliances.

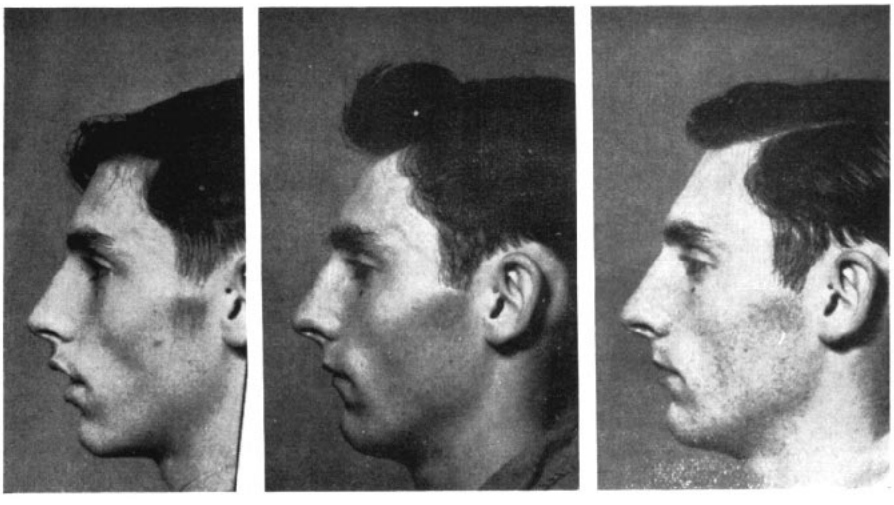


FIG. 15

A. Profile view—prior to treatment. B. After removal of all appliances. C. One year after removal of all appliances.

I wish, at this time, to present the photographic records of four other cases, all Class II, Division I, and treated the same way.

This presentation is not made with the idea of implying that all Class II, Division I cases should be treated orthodontically by the extraction of teeth. On the contrary, the point is stressed that extraction should not be considered *first,* if there is ample room to create satisfactory axial inclinations of the lower incisor and buccal teeth without excessive expansion either labially or buccally, or both, and *second,* if, in the treatment, the incisal teeth are not carried bodily forward.

FIG. 16

A. Front view—prior to treatment B. After treatment

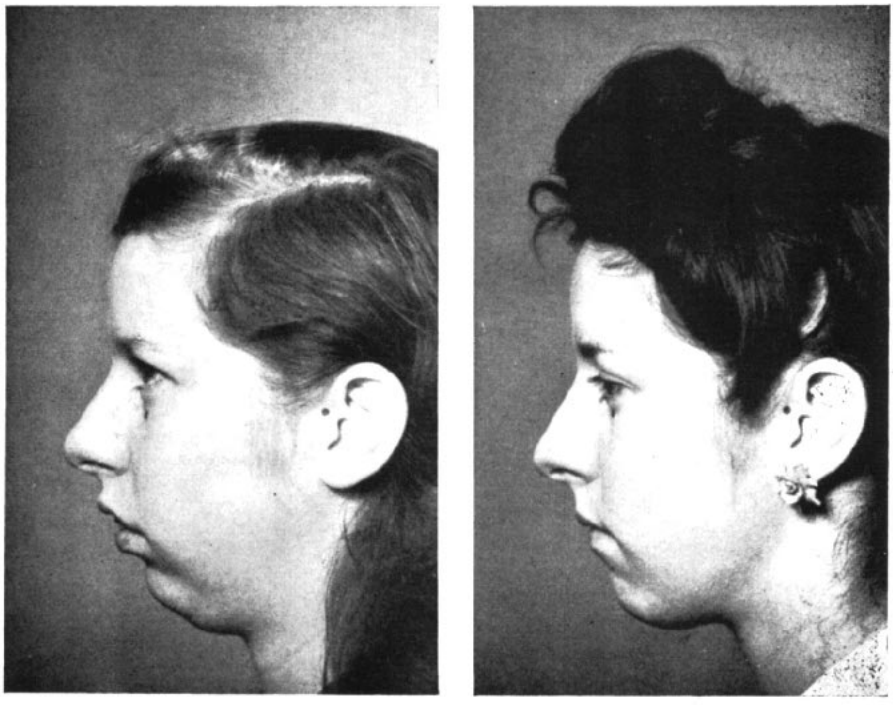


FIG. 17

A
Profile view — prior to treatment

B
Profile view — after treatment

FIG. 18

A
Front view—prior to treatment

B
After treatment

There are conditions in Class II, Division I cases however, which, with respect to crowding and lack of space parallel, to some degree, similar conditions in Class I cases and, it is in such cases, if the operator feels that little or no expansion can be maintained, that teeth are removed in treatment in Class II, Division I cases.

FIG. 19

A
Profile view—prior to treatment

B
Profile view—after treatment

FIG. 20

A
Front view—prior to treatment

B
After treatment

FIG. 21

A
Profile view—prior to treatment

B
Profile view—after treatment

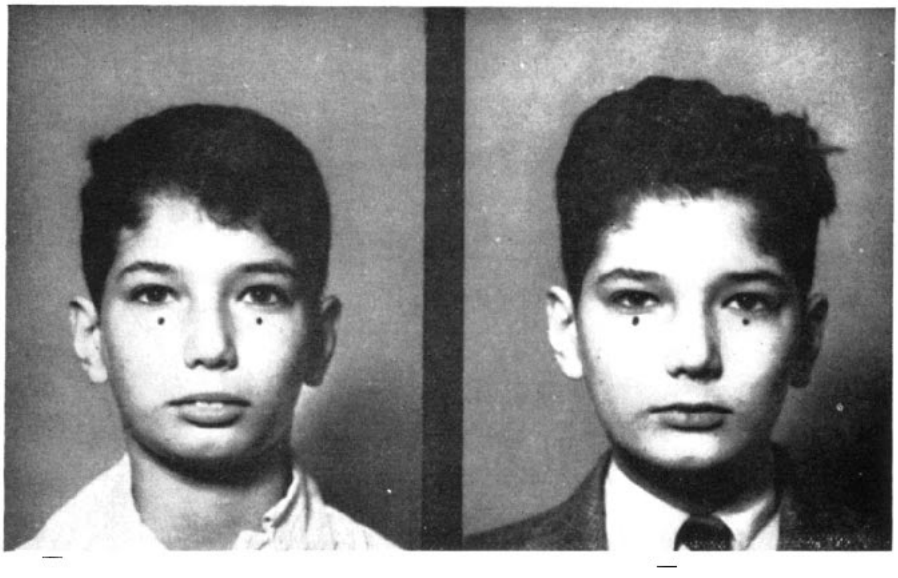


FIG. 22

A
Front view—prior to treatment

B
After treatment

FIG. 23

A
Profile view—prior to treatment

B
Profile view—after treatment

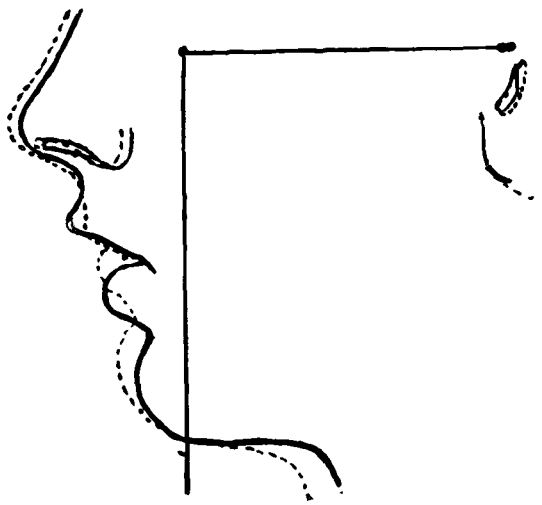


FIG. 24

Profile outline superimposed on the Frankfort Horizontal and the Orbital Planes. Solid line — before treatment. Dotted line — after treatment.

The last illustration represents an effort at superimposing the profile outlines of oriented photographs taken prior to and at the completion of treatment. These photographs were oriented on both the Frankfort Horizontal and the Orbital Planes. An effort is being made to find a means of determining the locale of the facial changes as represented by the oriented photographs. It may be that such a device as an oriented lateral head plate, which at the same time shows clearly the soft tissue outline, would be better suited for the purpose of determining where the soft tissue changes take place.

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REFERENCES

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2. LEWIS, SAMUEL, J.: Treatment of Malocclusion, *American Journal of Orthodontics and Oral Surgery.* Volume 32. p. 518. Sept. 1946.
3. TWEED, CHARLES H.: The Frankfort Mandibular Plane Angle in Orthodontic Diagnosis, Classification, Treatment Planning and Prognosis. *American Journal of Orthodontics and Oral Surgery.* Volume 32. pp. 175-221. April 1945.
4. LEWIS, SAMUEL J.: Personal communication.