

Case Reports

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HISTORY

The patient was born with a bilateral cleft lip, and cleft palate on the right side. The cleft lip was operated at two months and the cleft palate was operated at two years of age. The surgeons found it necessary to remove the tonsils and adenoids at six years of age. He had the usual childhood diseases without any complications. The patient's general health as well as his oral health was good. He was an introvert and maintained a restricted social life. His speech was fairly good.

EXAMINATION

At the age of 17.5 years he presented for treatment with a Class I malocclusion with inadequate maxillary and mandibular arch length (Fig. 1). From an oral and radiographic examination of this case the following were found: 1) four maxillary supernumerary teeth present; 2) the maxillary right second bicuspid blocked out and in linguoversion; 3) the maxillary right deciduous canine present; 4) the maxillary right permanent canine in supra- and labial version; 5) the maxillary right lateral incisor rotated 180°, mutilated, and oversized; 6) the maxillary right central incisor rotated 90° and fractured; 7) the maxillary left lateral incisor rotated 45° and fractured; 8) the maxillary left second deciduous molar present and its successor, the second bicuspid, congenitally missing; 9) the mandibular right first bicuspid malformed and pitted; 10) the mandibular lateral incisors directly lingual to the central incisors and blocked out; 11)

the mandibular right second bicuspid malformed and oversized; 12) the cleft closure in the palate quite successful; 13) the gingival tissues healthy; and 14) the third molars developing.

From the extraoral examination the maxillary lip was tight and scarred where lip surgery had been performed at the cleft. The median vermilion border of the lip was in supraversion with distortion. The lower lip portrayed a lack of muscle tone. The nose was slightly deviated.

A cephalometric evaluation, Figure 2, using the Downs' analysis indicated that the general pattern of the bony structures fell outside the normal range with the facial plane angle of 79.5 degrees, angle of convexity of +11 degrees, A-B plane angle of -11 degrees, mandibular plane angle of 35.5 degrees and a Y axis of 66.5 degrees.

The analysis of the denture pattern was more favorable. The occlusal plane angle was +11 degrees, the interincisal angle 137.5 degrees, the lower incisor to occlusal plane angle +25 degrees, the lower incisor to mandibular plane angle +0.5 degrees, and the tip of the maxillary incisor was +6 mm from the A-P plane.

TREATMENT AND OBJECTIVES

The object of treatment was to accomplish the following:

- (1) The correction of the intermaxillary relationships functionally and esthetically with posttreatment stability
- (2) try to improve lip function and muscle tone.

The following teeth were extracted during the placement of maxillary and mandibular edgewise appliances: the maxillary right second bicuspid, the

Presented before the Midwestern Component of the Edward H. Angle Society of Orthodontia, Indianapolis, Indiana, January 23, 1967.

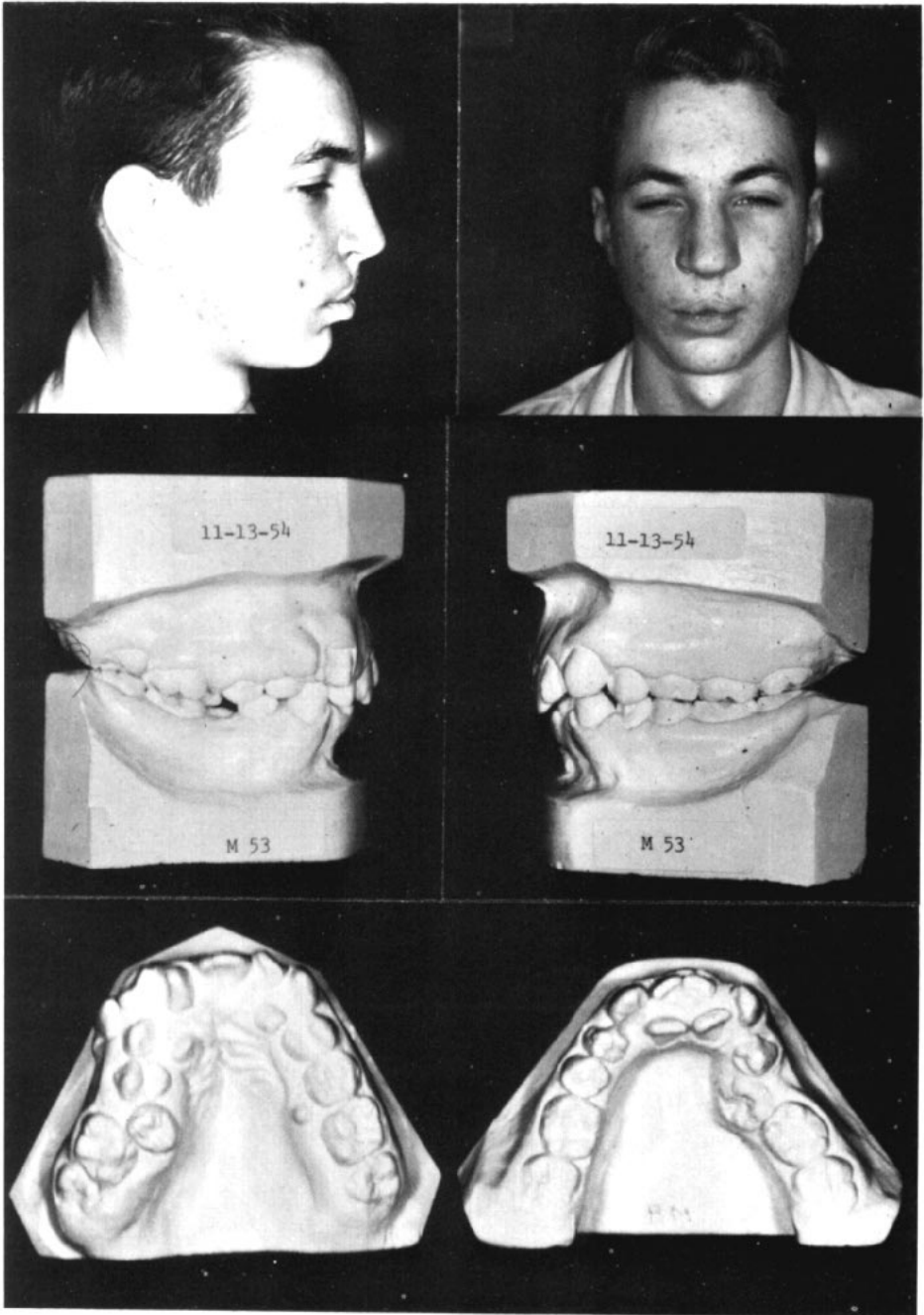
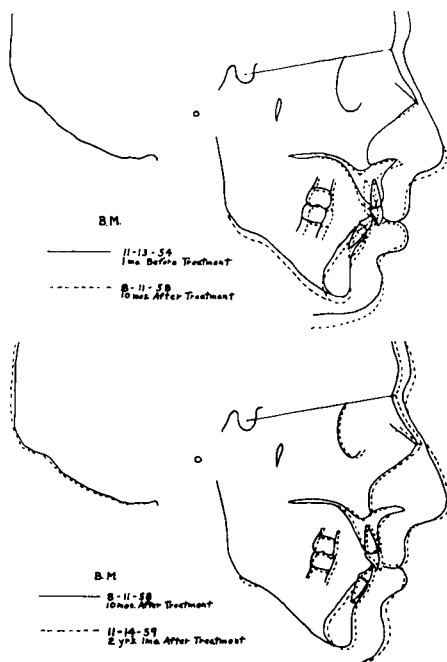


Fig. 1



maxillary right deciduous canine, the maxillary left second deciduous molar, the mandibular right malformed second bicuspid, the mandibular left malformed and pitted first bicuspid, and three maxillary supernumerary teeth.

At the beginning of treatment a maxillary cervical gear was used with the appliance to limit the forward movement of the molars, to assist in the posterior movement of the first bicuspids into the extraction sites and to assist in the posterior movement of the canines. By accomplishing this, sufficient space was gained for the alignment of the maxillary incisors. The maxillary right lateral incisor which was rotated 180 degrees and oversized was not rotated. In the plan of treatment a porcelain jacket crown was to be constructed for this tooth.

In addition, porcelain jacket crowns were made for the maxillary right central incisor which was rotated 90 degrees with a fractured crown, also for the maxillary left lateral incisor which was rotated 45 degrees with a fractured crown.

In the mandibular arch the left canine was moved posteriorly into the extraction site of the first bicuspid. The mandibular right first bicuspid was moved posteriorly into the extraction site of the malformed second bicuspid; the canine was moved posteriorly. By doing this, sufficient space was gained for the lateral incisors which were completely blocked out and lingual to the central incisors before treatment. During appliance treatment some speech therapy was experienced. The patient was advised to have additional lip surgery after orthodontic treatment. When all treatment objectives had been achieved, the appliances were removed. The patient was in appliance treatment for two years and ten months.

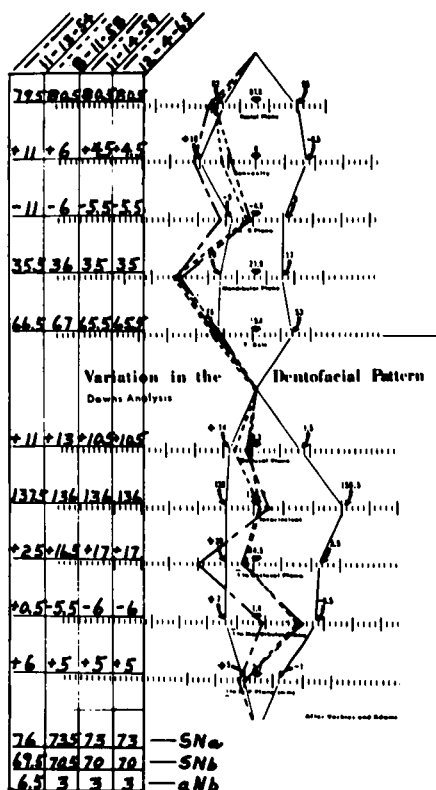


Fig. 2

RETENTION

A mandibular canine to canine lin-

gual retainer was worn for two years. A Hawley-type retainer was constructed for the maxillary arch and was worn for approximately the same time.

TREATMENT FINDINGS

A review of the cephalometric evaluations, Figure 2, revealed some changes of significance as follows: 1) angle of convexity decreased from +11 to +6 degrees, 2) the A-B plane angle decreased from -11 to -6 degrees, 3) the lower incisors to occlusal plane angle decreased from +25 to +16.5 degrees, 4) the lower incisors to the mandibular plane angle decreased from +0.5 to -5.5 degrees, and 5) the ANB angle decreased from 6.5 to 3 degrees.

The other objectives in treatment were accomplished by the correction of the intermaxillary relationships. Arch alignment and the relationship of teeth to the supporting structures are now satisfactory. The functional bite has been improved. Lip function and alignment and muscle tone have improved. All treatment objectives have been achieved except additional lip surgery which was out of our control.

POSTTREATMENT FINDINGS

From a survey of the cephalometric analysis from ten months after treatment to two years after treatment the facial growth is downward and forward even though the patient is twenty-one years of age. There has been an improvement in the lip profile. There has not been any change in the cephalometric readings from two years after treatment to eight years after except at the occipital protuberance and at gonion.

All the treatment objectives have been attained and remain stable. The final records were made eight years and two months after treatment when the patient was twenty-eight and a half years of age (Fig. 3).

HISTORY

The second case to be reported was a female with a bilateral cleft lip and palate. She came to my office at the age of six years but was so apprehensive, uncooperative and emotionally upset that it was impossible to consider orthodontic treatment at that time. She was receiving speech therapy for her poor speech and her hearing was impaired. The bilateral cleft lip had been operated at two months, four years, five years, and six years of age. The palate had been operated at two years of age. The tonsils and adenoids were present and she had the usual childhood diseases without any complications. She had a history of mouthbreathing and thumb-sucking. The patient's general health as well as her oral health was good. She was an introvert and restricted her associations with people. At the age of eleven the patient was returned to the office for orthodontic treatment. There had been an improvement in her speech; she was cooperative and not emotionally upset as before.

EXAMINATION

From the extraoral examination, Figure 4, the maxillary lip was scarred where lip surgery had been performed at the clefts. The maxillary scarred lip was not exceptionally tight. The mandibular lip was lacking in muscle tone and expressed a characteristic forward roll. The nose was broad at its base but quite symmetrical.

From the intraoral examination, Figure 4, the mandibular arch form was good with adequate arch length. The buccal segments of the maxillary arch were collapsed due to the palatal cleft. The premaxilla was very mobile and well forward as a result of the bilateral clefts. The maxillary central incisors were tipped lingually. The maxillary lateral incisors were malformed and unerupted with no supporting osseous tissue due to the clefts. The maxillary left

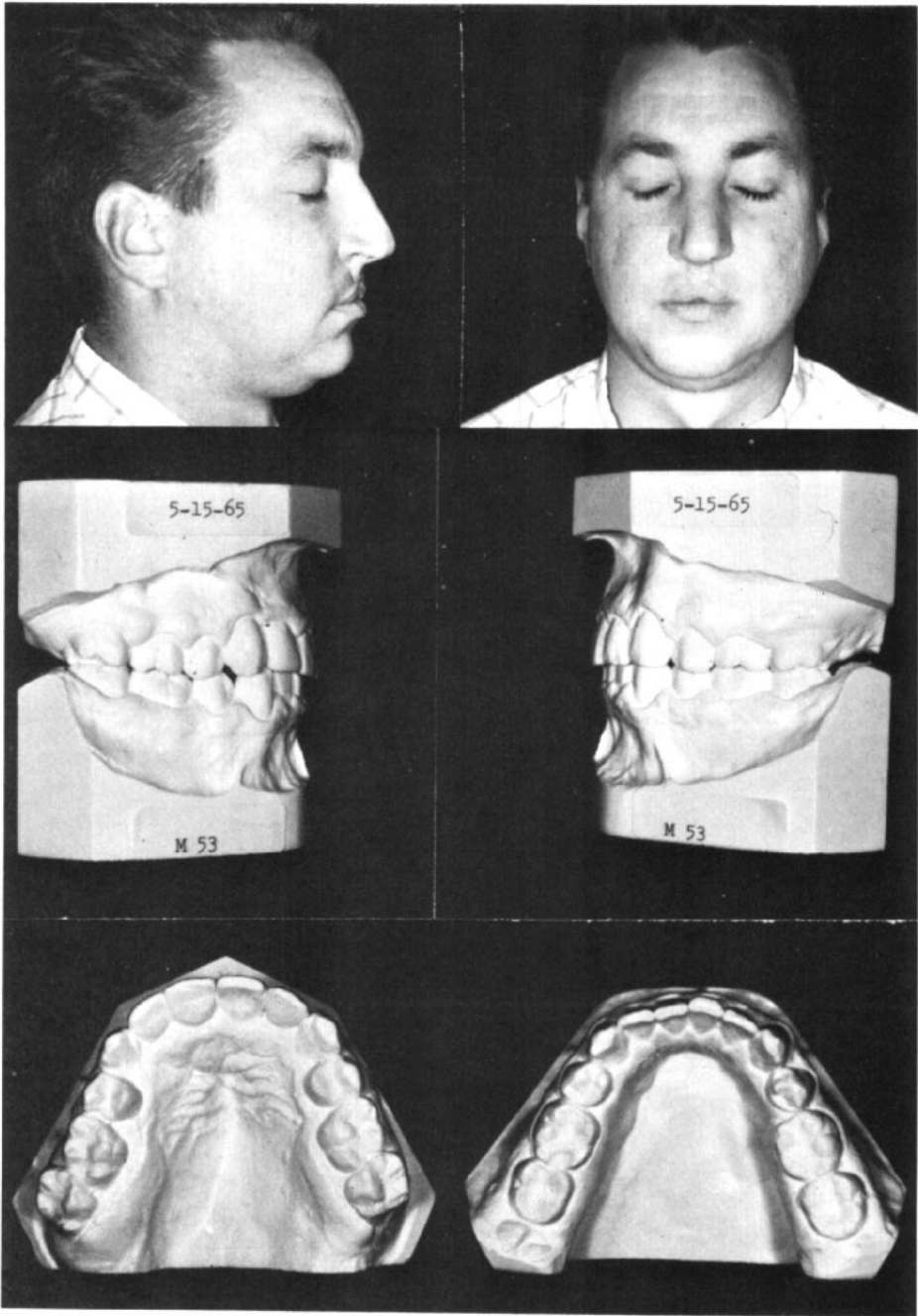


Fig. 3

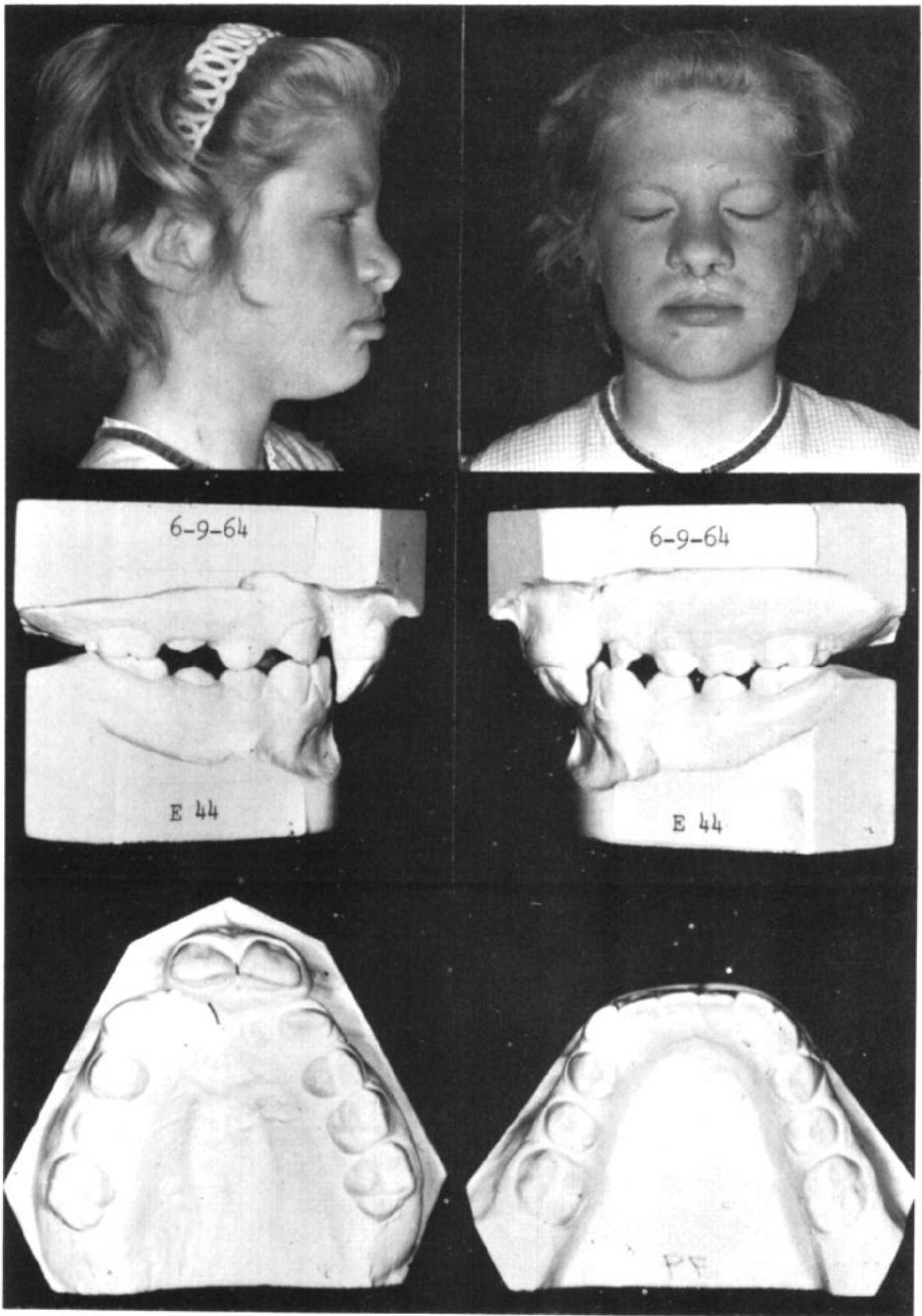
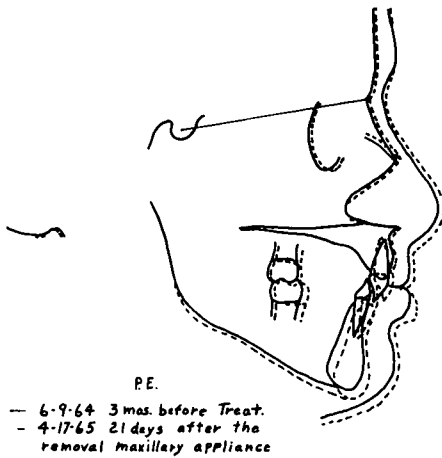


Fig. 4



P.E.
 - 6-9-64 3 mos. before Treat.
 - 4-17-65 21 days after the removal maxillary appliance

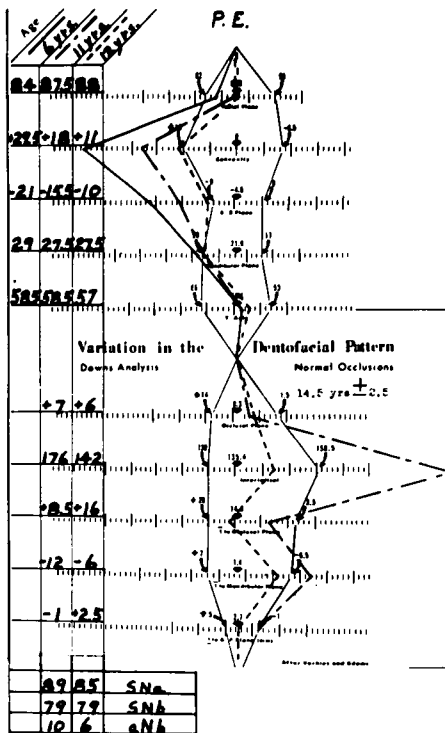


Fig. 5

second deciduous molar was loose and about to be shed.

A cephalometric evaluation, Figure 5, using the Downs' analysis at age of six years was as follows: the facial plane angle was 84 degrees, an angle of con-

vexity of +29.5 degrees, an AB angle of -21 degrees, a mandibular plane angle of 29 degrees and a Y axis of 58.5 degrees. At eleven years of age the Downs' analysis portrayed the following, although there had been no treatment to date: the facial plane angle was 87.5 degrees, an angle of convexity of +18 degrees, an AB plane angle of -15.5 degrees, a mandibular plane angle of 27.5 degrees and a Y axis of 58.5 degrees. An analysis of the denture pattern at six years of age was not made. The denture pattern at eleven years of age was as follows: an occlusal plane angle of 7 degrees, an interincisal angle of 176 degrees, the mandibular incisor to occlusal plane angle of 8.5 degrees, the mandibular incisor to the mandibular plane angle of -12 degrees, and the tip of the maxillary central incisor was -1 mm from the A-P plane.

TREATMENT AND OBJECTIVES

The treatment objectives were as follows: 1) the correction of the intermaxillary relationships functionally and esthetically with posttreatment stability; 2) try to improve lip function and muscle tone; and 3) to find an improvement in speech as a result of treatment.

Edgewise bracket bands were placed on the maxillary and mandibular teeth with the exception of the mandibular central and lateral incisors. These appliances were cemented during September 1964. Light archwires of .016 with helical loops were used for the rotations of the teeth and the expansion of the palate. They were followed with rectangular archwires. The premaxilla was very mobile and, as a result, it was impossible to obtain correction of the central incisors which we had expected in our treatment plan. The maxillary appliance was removed March 27, 1965 and a Hawley-type retainer was placed. In April the oral surgeon and the plastic

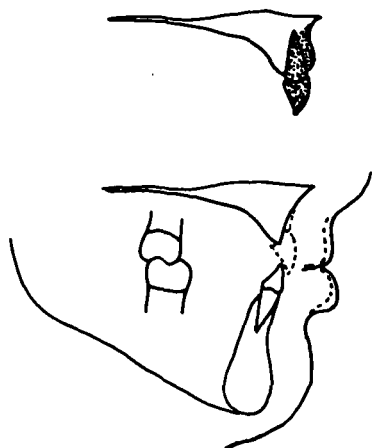


Fig. 6

surgeon were instructed to remove the maxillary central incisors, the unerupted lateral incisors and a portion of the osseous tissue of the premaxilla, Figure 6. The shaded area in Figure 6 portrays from the cephalometric radiograms the amount of tissue that was removed. A stone model which was trimmed as a template was prepared for the surgeons as well as a drawing from the cephalometric radiogram. The Hawley-type retainer was worn during the healing of the tissues. The mandibular appliances were removed May 1, 1965. It was not necessary to construct a mandibular retainer. After the tissues had completely healed a palatal plate was placed supplying the maxillary central and lateral incisors, Figure 7. The treatment time was eight months.

RETENTION

A palatal plate supplying the maxillary central and lateral incisors was to be used until a prosthetic appliance could be constructed which she would wear permanently. This would prevent the collapse of the palatal parts and improve the esthetics.

TREATMENT FINDINGS

A review of the cephalometric evaluations, Figure 2, revealed these changes: 1) angle of convexity decreased from +18 to +11 degrees as a result of surgery; 2) the A-B plane decreased from -15.5 to -10 degrees as a result of surgery; 3) the interincisal angle decreased from 176 to 142 degrees as a result of surgery and the improved angulation of the restored central incisors; 4) the mandibular incisors to the occlusal plane increased from +8.5 to +16 degrees; 5) the mandibular incisors to the mandibular plane angle increased from -12 to -6 degrees; 6) the tip of the maxillary central incisors to the A-P plane increased from -1 mm to +2.5 mm; 7) SNa decreased from 89 to 85 degrees as a result of surgery; and 8) ANB decreased from 10 to 6 degrees as a result of surgery.

The other objectives in treatment were accomplished by the correction of the intermaxillary relationship. This was done by the expansion of the palatal parts and correcting rotations thus establishing a normal functional occlusion for the buccal segments. Also, function and esthetics were improved by the extractions of the maxillary central and lateral incisors and surgical removal of the labial alveolar process including a portion of the premaxilla, which was restored with the proper prosthetic appliance. This in turn improved the lip function, muscle tone, and speech. There was tremendous improvement in speech after surgery and the placement of the prosthetic appliance, and definite improvement in the patient's personality and social being.

POSTTREATMENT FINDINGS

This patient was transferred to another state and was referred to an orthodontist in the city to which they moved. The orthodontist informed me a year

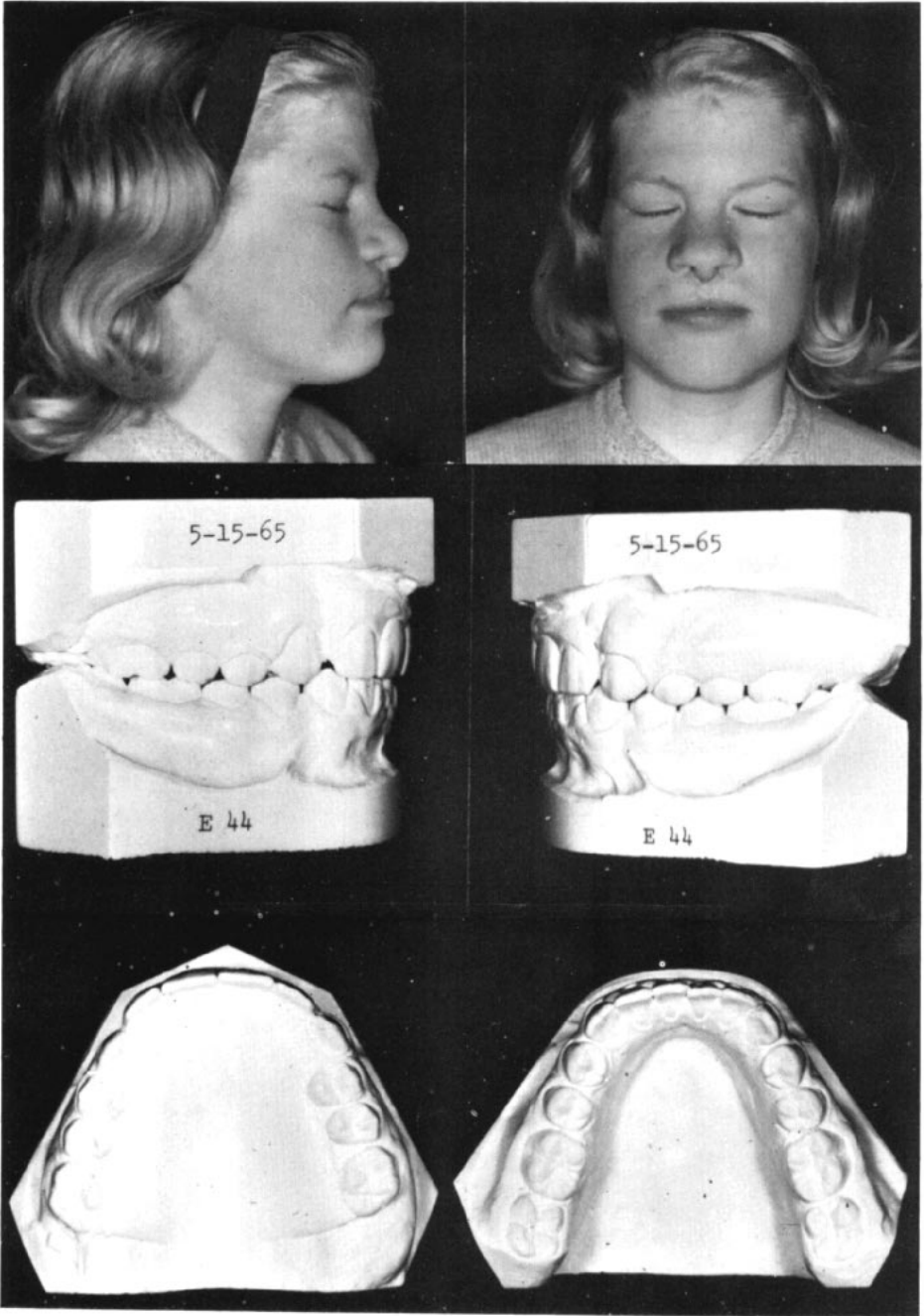


Fig. 7

later that the patient was doing very well and all treatment objectives remained stable. Speech therapy was being continued with good results. I received a letter from the mother stat-

ing that the patient is doing well and reaping compliments from their friends on her appearance and speech.

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