Case Reports

FOREWORD

THE case reports which follow were requested by the Editor of THE ANGLE ORTHODONTIST to supplement my papers, "The Application of the Principles of the Edgewise Arch in the Treatment of Malocclusions," which appeared in the preceding number of this journal, January, 1941. Dr. Hays N. Nance has been working with me throughout the evolution of this technique and has practiced this philosophy of treatment over a longer period of time than anyone in the group. Dr. William Tweed is one of the youngest having practiced orthodontia for only five years. These two men were selected from a large number of excellent clinicians who have been practicing the philosophy of treatment as advocated in my paper. I regret that it is impossible to have case reports from every member of this group.

CHARLES H. TWEED, JR.

CASE ONE

HAYS N. NANCE, D.D.S.
Los Angeles, California

THIS CASE, a Class II, Division 2 (Angle), was selected to report for several reasons: 1. It was one of the first patients upon whom I used the edgewise appliance. 2. Because the overbite was severe. When the patient's jaws were

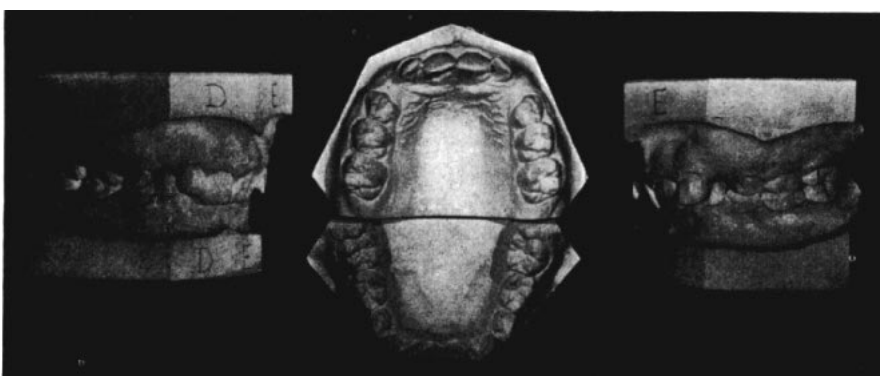


Fig. 1.—Models before first period of treatment. (August 1931)

closed the incisal edges of his upper central incisors came to a position five millimeters below the gingival line of his lower central incisors. 3. The case was first treated in the mixed dentition at the age of eleven years and three months (Fig. 1), from August 1931 to December 1932, at which time retainers were placed. Retainers were worn for a reasonable length of time, but even during this period the case began to relapse. By the time the permanent cuspid and bicuspid teeth were erupted a complete retrogression had taken

place—the jaws were again in Class II relationship and the extreme overbite was re-established (Fig. 2). 4. Records, made a considerable length of time after all mechanical retention had been discontinued, are available.

History of Patient: This boy was eleven years and three months of age when he presented and was of good physical and mental health. The length of pregnancy was normal, there were no abnormal conditions during gesta-

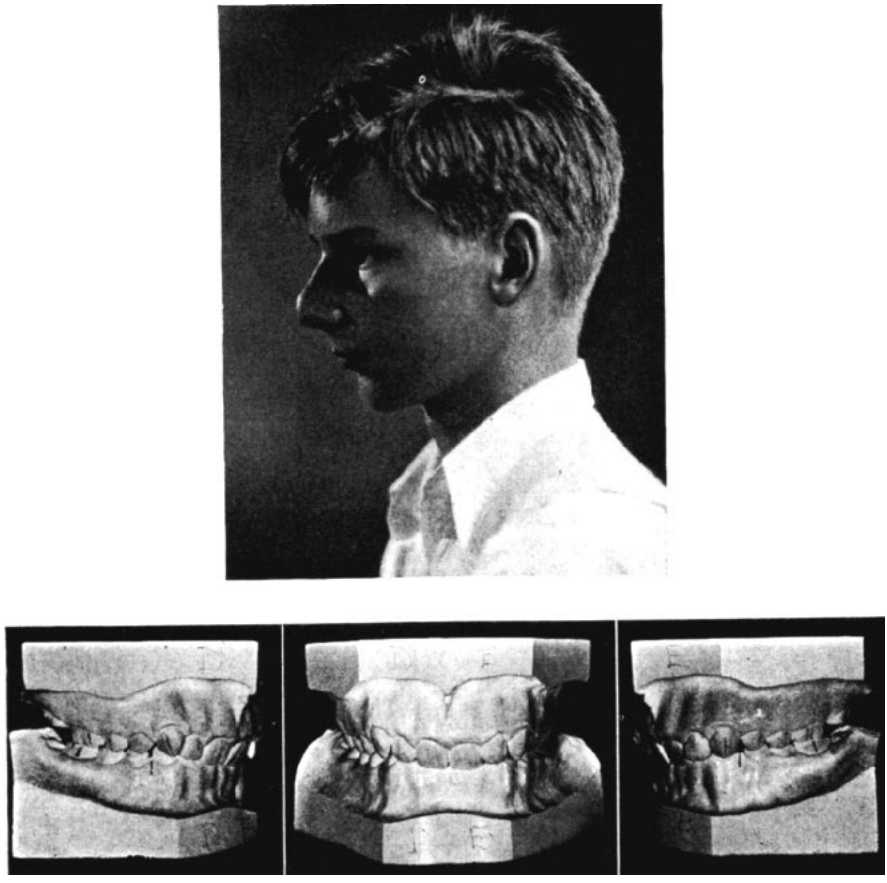


Fig. 2.—Models and photograph after complete relapse—at time second period of treatment was started. (August 1934)

tion, but there was a history of skull distortion, as result of trouble in delivery, that persisted for about one year. The birth weight was six and one-half to seven pounds. The patient was breast-fed for seven months and under care of a pediatrician until seven or eight years of age. He had an accelerated growth period from thirteen to sixteen years of age; was over six feet in height at age of sixteen and is now six feet two and three-quarters inches and weighs 175 to 180 pounds.

Family History: The health of the parents was good and they were of mixed racial blood—English, Scotch-Irish, and German. Nothing was known

concerning occlusion of parents' teeth, but patient's older sister had the same general type of malocclusion. The father was six feet in height.

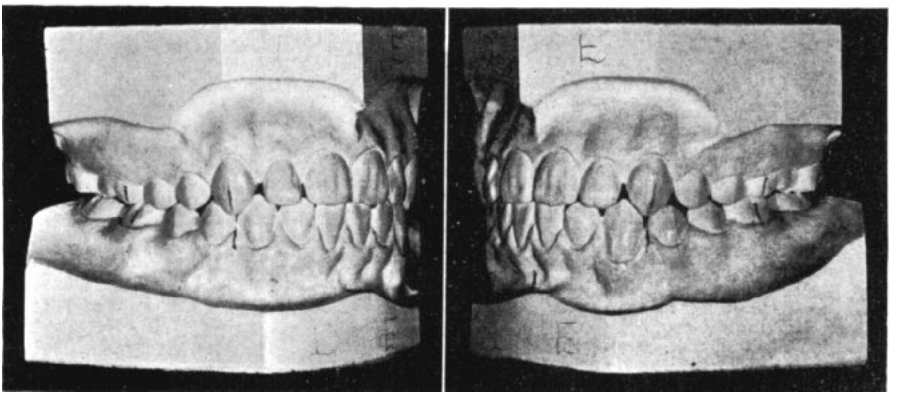
Disease History: Pneumonia at age of two was followed by a temperature that persisted for about one year. Temperature ceased shortly after tonsils and adenoids were removed. No record of later illnesses other than an occasional common cold.

Dental and Orthodontic Physical Examination: Face and cranium were of tapering type. Lip muscles seemed tense. Nose was, and is, abnormally long and large. Alveolar process labial to lower anterior teeth was extremely thin. There was no dental caries present and patient is still free from caries. Radiograms showed all teeth present, including third molars and there were no supernumerary teeth.

Case Analysis: As to etiological factors, the hypertonicity of the patient's lip muscles and his habit of resting his chin on his fist or palm of open hand while reading or studying, may have had a bearing on the cause of his original malocclusion and also may be the reason for the complete relapse which occurred after his first period of treatment. The chin-resting habit has completely disappeared and the patient has overcome the habit of tensing his lip muscles against his anterior teeth.

Outline of Objectives in Treatment: 1. To place the teeth of both arches, as nearly as possible, in their normal positions as related to the skull as a whole. 2. To instruct the patient in ridding himself of perverted habit influences in order that the muscles of the jaws and face might function normally.

Outline of Means of Obtaining Tooth Movement: Since, as before stated, this case completely relapsed after the first period of treatment, the outline describing tooth movement, retention, etc., will be confined to the second period of treatment. The patient was fourteen years and three months of age before his cuspid and bicuspid teeth were fully erupted and the second period of treatment was started at that time, August 1934. Figure 2 shows models which were made at that time. Edgewise bracket bands were made for all upper and lower incisor, cuspid and bicuspid teeth and molar bands with edgewise bucal sheaths for all four first molars. All bands were cemented to place except those for the lower central and lateral incisors. The overbite condition did not allow the lower central and lateral bands to be placed until later. Round stainless steel arch wires, .020" with molar tie-back spurs, were placed on upper and lower arches. Both arch wires were tied back to molar sheaths and tip-back—or second order—bends were placed in lower arch wire at positions corresponding to locations of cuspid and bicuspid brackets and molar sheaths. This was to start the lower arch preparation for anchorage. When the upper arch wire was first placed its anterior portion lay well to the gingival of the incisor brackets, but by ligating the incisor brackets to the arch wire the incisors were eventually depressed until the wire rested passively in these brackets. By this time, the lower central and lateral incisor bands could be cemented to place and the depression of the four lower incisors begun. Several months later, both round arches were replaced with ideal edgewise arches, with curves of Spee incorporated, and molar "tie-back" spurs. Second order bends were placed in lower arch wire at this time also, particular attention being paid to putting much more tip-back in molars than the cuspids and bicuspids.



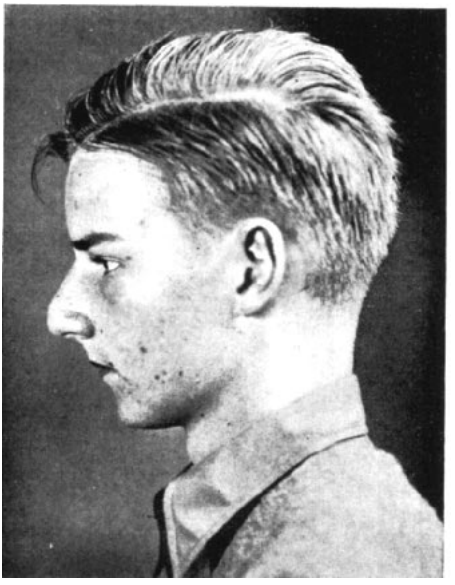
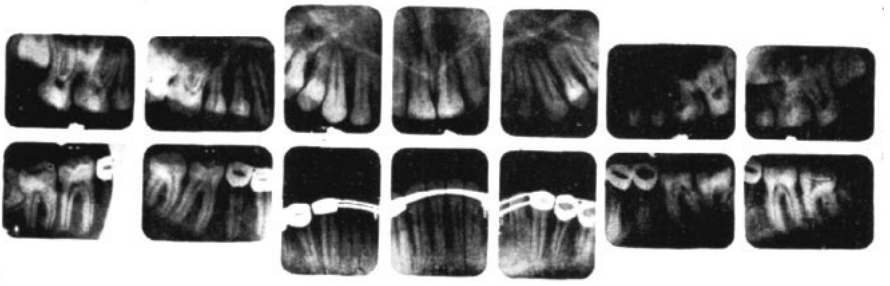


Fig. 3.—Models, photograph and radiograms at time of retention at end of second period of treatment. (May 1936)



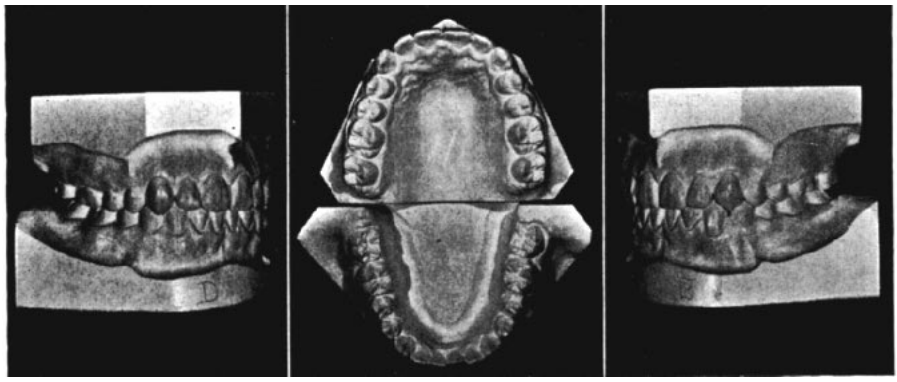


Fig. 4.—Models a little over two years after all mechanical retention had been discontinued

After a period of about four weeks the second order bends were increasec in the lower arch wire and at that time the second order bends were placec in the upper arch wire and intermaxillary rubber force started for the pur pose of moving the teeth of the upper arch distally en masse. During thi. period of intermaxillary rubber force the second order bends were increasec

Fig. 5.—Photograph February 1941, almost four years after all mechanical retention had been discontinued.

in both arch wires at intervals of about four to six weeks. Tip-back bend. were more severe in the lower molar areas than in any other locations, anc more severe in the lower arch as a whole than in the upper arch. The alveola process labial to the lower incisors was very thin and any appreciable forwarc

displacement of the lower teeth might have caused some resorption of this labial tissue. Slight lingual torque was also placed in the lower arch wire at locations corresponding to the lower central and lateral band brackets, at about the time intermaxillary rubber force was started. This was an added precaution to guard against anterior displacement of lower alveolar process and teeth. After the teeth had been moved to positions as nearly normal as possible, new ideal edgewise arches with second order bends, curves of Spee, molar tie-back spurs, and intermaxillary hooks on upper, were placed. Again the greater tip-back bends in lower arch over that of the upper was stressed. The new arches were placed for the purpose of finally trueing up the tooth positions. Light rubber ligatures were worn to maintain arch relationship during this final stage. The second period of active treatment extended over a period of nineteen months.

Outline of Retention: An upper Hawley bite-plane with labial wire that passed between the cuspids and laterals, and adapted to labial surfaces of centrals and laterals, was worn. On the lower arch cuspid bands were connected lingually with an .040" wire. All four lower bicuspid rotations were retained with bands and spurs. A lower Hawley, with first molar occlusal rests that fitted lingual to the cuspid to cuspid wire, was used.

Records: Figure 1 shows models of patient when he first presented, at age of eleven years and three months. Figure 2 shows models and photograph at age of fourteen years and three months, after complete relapse from first period of treatment and at time second period of treatment was started, August 1934. Figure 3 shows models, radiograms and photograph of patient at the time active appliances were removed and retainers placed, after second period of treatment. Figure 4 shows models of case a little over two years after all mechanical retention had been discontinued. Figure 5 shows photograph of patient as he now presents, February 1941.

Summary: Since this patient's correction is still maintained at this writing, more than three years after all mechanical retention had been discontinued and, since his photograph (Figure 5), taken at this time, shows a facial change for the better over the one taken at time of retention (Figure 3), it seems reasonable to suppose that the greater part, at least, of his correction will continue to hold.

1014 Roosevelt Building

CASE TWO

HAY N. NANCE, D.D.S.
Los Angeles, California

This second case, also a Class II, Division 2 (Angle), was selected to re port for the single reason that both lower second bicuspids of this patien were congenitally missing. Whenever the writer has shown, in model clinic cases of this type, treated by closing the second bicuspid spaces of the lowe arch, discussion has followed in each instance, showing evident interest i this type of treatment. The writer understands fully that he is not the onl one who has cared for cases of this kind in this manner. At the same time it is believed that the great majority of orthodontists care for such cases b either (1) leaving the second deciduous molars in place or (2) extracting th second deciduous molars and leaving the second bicuspid spaces open fo artificial restorations.

History of Patient: This patient was a girl of eight years and ten month of age when she presented and the first period of treatment was begun. Sh was of good physical and mental health as were other members of her family She liked a wide range of foods and evidently assimilation was good. He growth was even.

Family History: Parents were in good health. The mother's teeth wer crowded and looked very much like those of patient.

Disease History: The physician who examined the patient's nose an throat reported normal tonsils and no adenoid growth. Tonsils have not bee removed. Nasal passages were large and free. She was not a mouth breathe No illnesses or serious accidents were reported.

Dental and Orthodontic Physical Examination: Shape of face and cra nium was of the square type. Lips, aside from backward position of lower li due to type of malocclusion, seemed normal and relaxed and the muscula ture, as a whole, seemed normally distributed and relaxed. There were neve any evidences of nervousness about this girl. Tongue was normal in size an there were no perverted tongue habits. Osseous development appeared to b normal. Shape of teeth—wide, square. Type of malocclusion—Class II, Divi sion 2 (Angle). Dental caries was quite extensive in deciduous molars. Ther were just two small occlusal pit fillings in permanent molars and no lesion in other permanent teeth.

Case Analysis: Both lower second bicuspids were congenitally missing but there were no perverted habit influences to give an insight as to the caus of the malocclusion, and there are seemingly no perverted influences goin on at the present time.

Outline of Means of Obtaining Tooth Movement: A. First period o treatment: When the first period of treatment was begun the parents strenu ously objected to the extraction of the patient's lower second deciduous mo lars, so it was thought at that time that the entire treatment would have to be carried through with the deciduous molars left in place. Edgewise bracke bands were placed on upper and lower permanent central and lateral in cisors, deciduous cuspids, first deciduous molars (except the lower right whic

had been lost), and second deciduous molars. Molar bands, with edgewise buccal sheaths, were placed on all four first permanent molars. .020" round stainless steel arch wires, with "tie-back" molar spurs, were placed February 1935. Curves of Spee, and decided tip-back bends at lower first molar sheath areas, were incorporated. About six weeks later ideal edgewise arch wires,

Fig. 1.—Models and photograph at beginning of first period of treatment. (February 1935)

with "tie-back" molar spurs, were placed. Curves of Spee, and decided tip-back bends at lower first molar sheath areas, were incorporated at that time.

By May, one month later, bracket engagement had been obtained and second order bends were then placed in lower arch wire at locations of cuspid and deciduous molar brackets, and the tip-back or second order bends at lower molar sheath areas were increased. This was done in the lower arch,

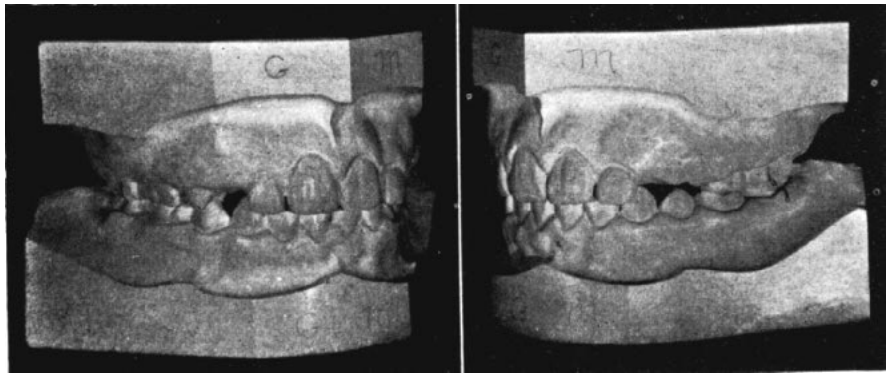


Fig. 2.—Models at end of first period of treatment. (May 1936)

ahead of the upper arch, for the purpose of establishing firm anchorage in the lower before intermaxillary rubber force was begun. After about another month second order bends were placed in the upper arch wire at locations corresponding to the brackets of the cuspid and deciduous molar teeth and the sheaths on first permanent molars. Rubber intermaxillary force was begun, to move upper teeth distally en masse. Figure 1 shows models and photograph of patient at beginning of treatment, February 1935. Figure 2 shows models at end of first period of treatment, May 1936.

B. Second period of treatment: At the beginning of the second period of treatment the parents consented to the extraction of the lower second deciduous molars. Figure 3 shows models at beginning of second period of treatment, January 1938, immediately following extraction of lower second deciduous molars. Edgewise bracket bands were placed on all upper and lower centrals, laterals, cuspids, and first and second bicuspids. Molar bands with edgewise buccal sheaths, were placed on all four permanent molars. Round stainless steel .020" arch wires, with molar "tie-back" spurs, were placed on upper and lower arches.

About four weeks later an ideal edgewise arch wire, with molar "tie back" spurs, hooks for Class II intermaxillary rubbers, and with curve of

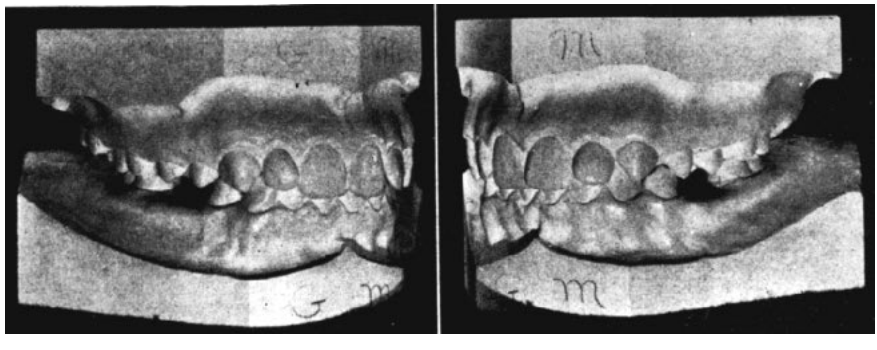


Fig. 3.—Models at beginning of second period of treatment. (January 1938)

Spee incorporated, was placed on upper. Edgewise arch wire, with Strang loops located just distal to first bicuspid brackets, was placed on the lower arch. Curve of Spee was not placed in the lower arch wire because the bite, in the treatment of this type of case, has a tendency to close as soon as the space-closing is started, and the presence of a curve of Spee would have ex-

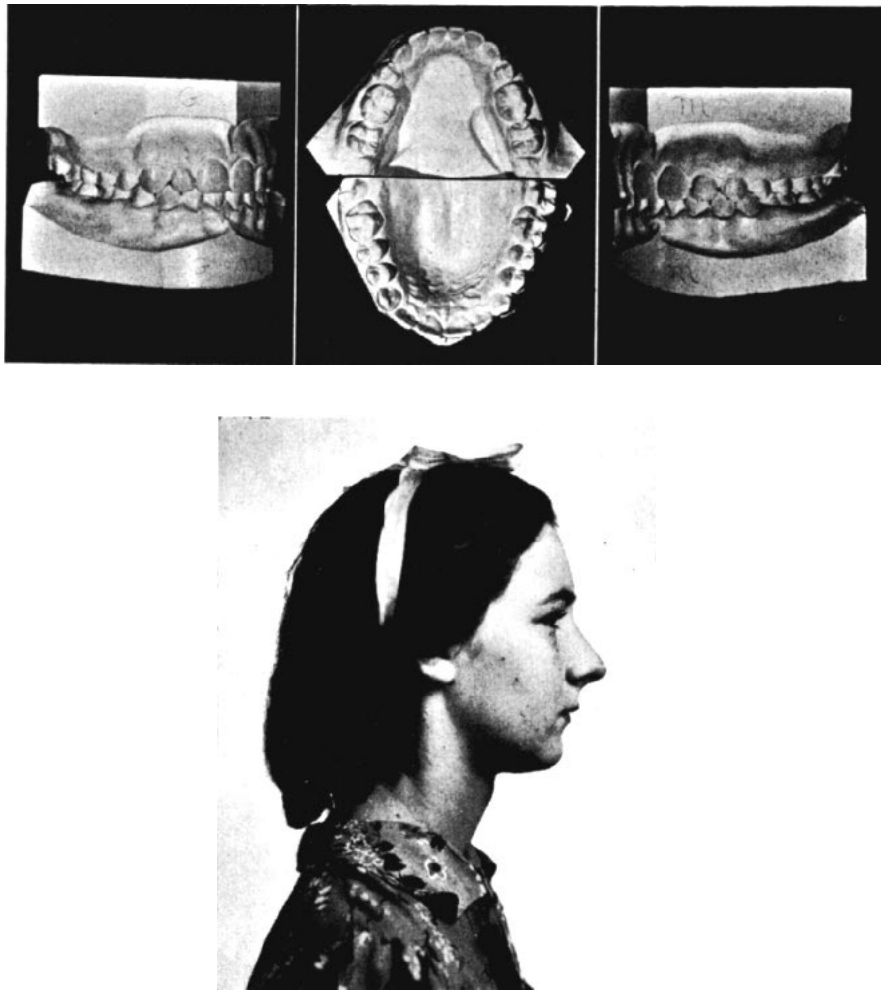


Fig. 4.—Models and photograph at end of second period of treatment. (August 1939)

aggerated this tendency. Severe tip-back bends were placed in lower arch wire, at locations just distal to distal leg of each Strang loop, to make sure that the molars would remain in their vertical positions as they were being moved forward into the second bicuspid spaces. Lingual torque was not placed in the anterior section of the lower arch wire, as is customary in treatment of cases not requiring space-closing, as this would do away with the anchorage in the anterior teeth that is so necessary to resist forward move-

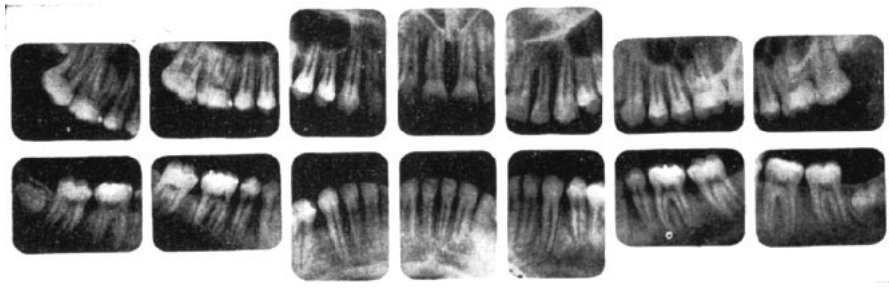


Fig. 5.—Radiograms at end of second period of treatment.

ment of the molars. Even a slight labial torque here would be beneficial in helping to maintain this anchorage. Strang loops were opened by ligating from distal legs of loops, or properly located spurs, to the distal of lower molar sheaths. Very slight second order bends were placed in the upper arch wire—just sufficient to correct axial positions of the upper cuspids, bicuspids and molars. It is evident that after this slight adjustment had been dissipated the upper arch then became stationary anchorage, to aid the intermaxillary rubber force in moving the lower molars forward.

In spite of having all the anchorage possible carefully conserved in the lower arch, the bite still had a tendency to close and the lower first molars to tip slightly mesially. To overcome this, an ideal edgewise arch wire, without closing loops, but with a reverse curve of Spee, and "tie-back" spurs mesial to molar sheaths, was used alternately with every third or fourth appointment with the arch wire containing the closing loops. Because of the reverse curve of Spee, this plain ideal arch wire depressed the lower anterior teeth and kept their crowns tipped slightly forward. The severe tip-back bends, mesial to the molar sheaths, up-righted the molars which were being moved mesially.

When the spaces were apparently closed, a third, or finishing arch wire, was placed. This was an ideal edgewise arch wire, with regular curve of Spee incorporated, and molar tie-back spurs. Severe tip-back bends were also

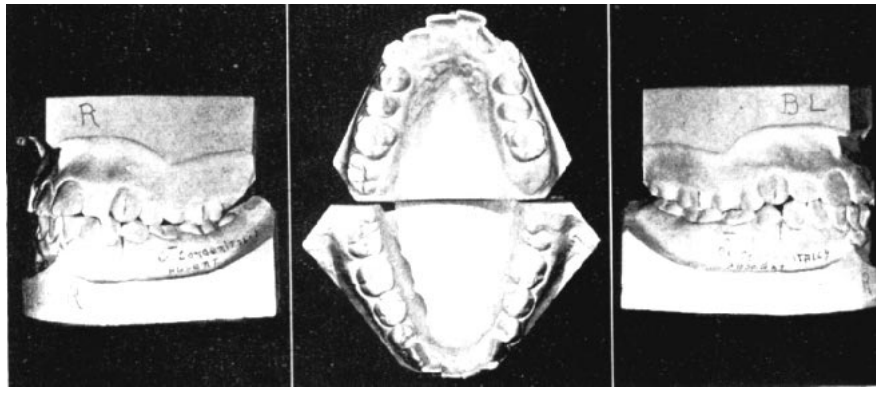


Fig. 6.—Models of the older patient mentioned on page 122 at beginning of treatment.

placed in the lower first molar sheath locations to make sure that the lower molars would be in correct vertical positions at time of retention. This final arch wire, combined with light intermaxillary rubber force, was worn for four or five weeks prior to retention. Figure 4 shows models and photograph at time of retention, August 1939. The second period of active treatment extended over a period of eighteen months.

Outline of Retention: An upper Hawley bite-plane was used with labial wire, and springs extending from distal ends of retainer to occlusal surfaces of upper second molars to prevent their elongation until the lower third molars erupt to occlude with them.

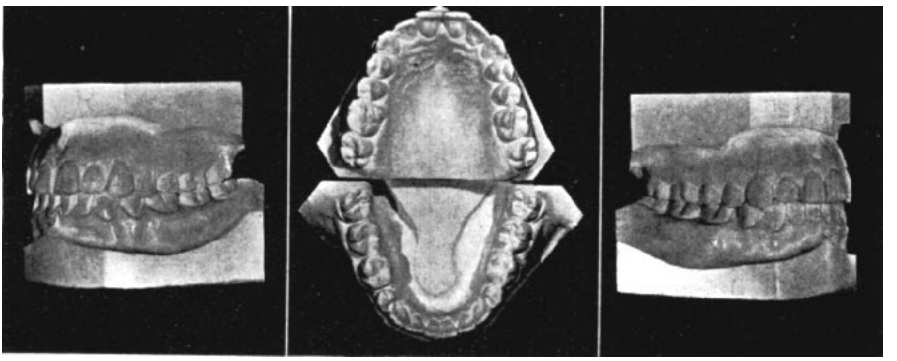


Fig. 7.—Models of the older patient mentioned on page 122 over two years after mechanical retention had been discontinued.

On the lower a Hawley retainer was also used, embodying the following details: 1. Occlusal rests on first molars; 2. Labial wire, passing over the embrasures between the cuspids and laterals and adapted to labial surfaces of centrals and laterals; 3. Thin steel wire spurs extending from vulcanite to touch distal surface of each lower first molar. The purpose of these spurs was to hold the first molars in their forward positions.

Records: Figure 1 shows models and photograph of patient at beginning of first period of treatment, February 1935. Figure 2 shows models at the end of first period of treatment, May 1936. Figure 3 shows models at beginning of second period of treatment, January 1938. Figure 4 shows models and photograph of patient at end of second period of treatment, August 1939. Figure 5 shows radiograms of patient at end of second period of treatment.

Summary: It seems that, in determining what treatment should be resorted to in cases where lower second bicuspids are missing and lower third molars are present, it boils down to the selection of the least of several evils. One: If the lower second deciduous molars were allowed to remain in place they would occupy more space than the second bicuspids and thereby keep the teeth, forward of them, just enough off the ridge to invite relapse in the lower cuspid to cuspid area after the case had been treated and mechanical retention discontinued. And too, there would always be a question as to how long the deciduous molars would remain in the arch before the roots resorbed and the teeth were lost. Two: If the deciduous molars were extracted, and the

normal spaces retained for second bicuspid artificial restorations, it would mean the mutilation of four teeth. Three: In either of the above instances, it would probably also mean the eventual extraction of the lower third molars. Four: After a case has been treated as described in this report, the upper second bicuspids are occluding with lower first molars. This is surely not an ideal condition. However, the mutilation of four teeth has been prevented by this treatment; the third molars usually do not have to be extracted but are released and allowed to become serviceable teeth; and, finally, the chances of retention, particularly in the lower cuspid to cuspid region, are believed to be greatly enhanced.

Since the patient of this report is still too young for lower third molars to be in place, the following models of a similar case, in which both lower second bicuspids were congenitally missing, are presented to illustrate tooth positions after the lower third molars have erupted and taken their positions in the arch. The records available for this third case are not sufficient for a complete case report but Figure 6 shows models at beginning of treatment and Figure 7 shows models over two years after all mechanical retention had been discontinued.

I have even advocated this type of treatment in certain other cases where there are no congenitally missing lower second bicuspid teeth. The type of case in question is one diagnosed as a mild bimaxillary protrusion; one for which you might hesitate to extract the four first bicuspids and close all the spaces, for fear of facial distortion, but, at the same time, one in which you feel sure there has been at least some forward drift of the teeth. This mild bimaxillary protrusion, if treated in the orthodox manner, would necessitate the moving of the lower anterior teeth further off the ridge in expanding for tooth room, therefore relapse would, in all probability, shortly follow the discontinuance of mechanical retention.

The treatment of cases of mild bimaxillary protrusion by intential removal of the lower second bicuspids will be described in a paper which is now in preparation and will be published at a later date.

1014 Roosevelt Building

CASE THREE

WILLIAM M. TWEED, D.D.S.
Phoenix, Arizona

I. *History of Patient.*

a. White (Irish), thirteen years old—physical and mental health very good.

b. Prenatal

1. Length of pregnancy—nine months.

Fig. 1.—Photograph of patient in Case III before (above) and after (below) treatment.

c. Birth.

1. Delivery—normal.
2. Birth weight—seven and one-half pounds.
3. Condition in neonatal period—good.

d. Feeding.

1. Breast.
2. Duration of breast feeding—nine months.
3. Orange and prune juice.
4. Rapid in nursing.

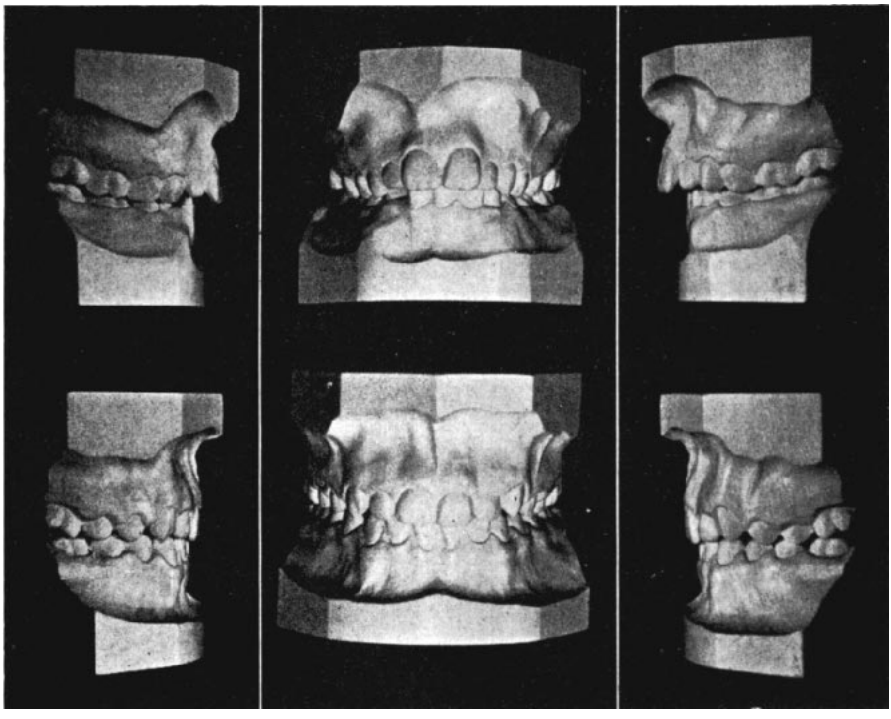


Fig. 2.—Casts, Case III, before (above) and after (below) treatment.

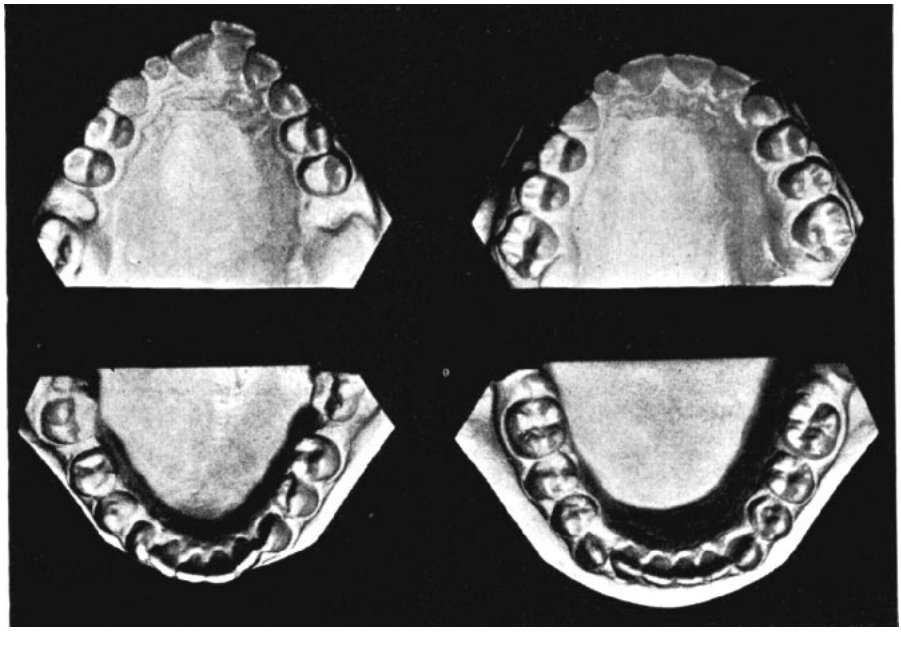


Fig. 3.—Occlusal view of casts of Case III.

e. Diet in childhood.
   1. Fruit juices, vegetables, cream of wheat.
   2. Food taken most readily—meat.
f. Growth.
   1. Even.

II. *Family History.*

a. Health of parents—good.
b. Occlusion of parents.
   1. Mother, Class II.
   2. Father, Normal.

III. *Disease History.*

a. Whooping cough at two years.
b. Chicken pox at nine years.
c. Measles at eleven years.

IV. *General Physical Examination.*

a. Five feet, four inches, ninety-two pounds, slim.
b. Posture—good.

V. *Dental and Orthodontic Physical Examination.*

a. Shape of face and cranium—triangular.
b. General musculature normal with the exception of labial muscles which were slightly flaccid and lacking in tone.
c. Lips more or less flaccid.
d. Tongue, size and rest position normal.
e. Osseous development normal.
f. Morphology of teeth—well-shaped.
g. Type of malocclusion—Class II, complicated by mutilations. Mandibular first molars had been lost in the eighth year. Maxillary first molars lost in eleventh year. Case when first examined presented the mandibular second molar fully erupted, but tipped mesially to a marked degree. Maxillary second molars were not erupted. General collapse of mandibular arch with a cross bite condition existing on the left cuspid-bicuspid area.
h. Very few caries, limited to pit and fissure cavities.

VI. *Case Analysis.*

a. Etiological factors.
   1. Primary factors.
      a. Mouth breathing occasioned by adenoid tissue which was removed in the eighth year.
      b. Premature loss of six year molars.

VII. *Outline of Objectives in Treatment.*

a. In view of patient's age, it was felt that full space closure would be preferable to a restoration of the lost space with a necessity of wearing prosthetic appliances after treatment.

VIII. *Outline of Means of Obtaining Tooth Movement.*

a. Edgewise mechanism used throughout treatment. Space closure was complicated by the mesially tipped second mandibular molars. These units were tipped to the upright position and then tipped distally before any attempt was made at closure. It was felt that the four mandibular incisors were in normal positions. The bicuspids were moved far enough distally to provide space for the rotated cuspids without dislodging the incisors labially. In the maxillary arch, the marked irregularities were removed while anchorage was being prepared in the mandibular arch. At the time anchorage was fully established in the mandibular denture, maxillary second molars were not

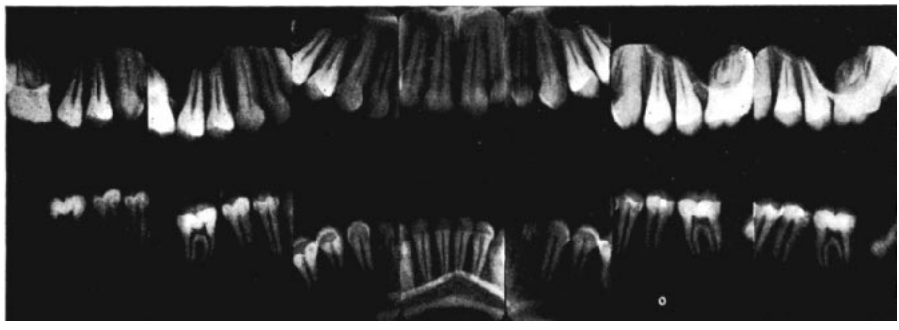


Fig. 4.—Case III. Dental X-rays taken six months after removal of active tooth-moving appliances.

yet fully erupted. Class II mechanics were put in operation and maxillary teeth were moved distally. It was not until normal mesial-distal relations had been obtained that the second maxillary molars were erupted sufficiently to band. They were in a slightly rotated position upon full eruption; they were then banded and this condition was corrected and the case routinely finished with .0215″ x .028″ ideal arch wires, which had incorporated proper second order bands, torque, and "T" spurs, 1/8″ mesial to molar sheath.

IX. *Total Treatment Time.*

a. One year and twelve days.

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CASE FOUR

WILLIAM M. TWEED, D.D.S.
Phoenix, Arizona

I. *History of Patient.*

a. White (Irish), twelve and one-half years old, physical and mental health very good.

b. Prenatal.

1. Length of pregnancy was nine months.
2. No abnormal condition during gestation except nausea.

Fig. 1.—Photograph of patient in Case II before (above) and after (below) treatment.

c. Birth.

1. Delivery normal; given oxygen.
2. Birth weight, seven and one-fourth pounds.
3. Condition in neonatal period normal.

d. Feeding.

1. Breast.
2. Duration of breast feeding eleven or twelve months.
3. Normal nursing habits; no thumb sucking.

e. Diet in childhood.

1. Normal, well-balanced.

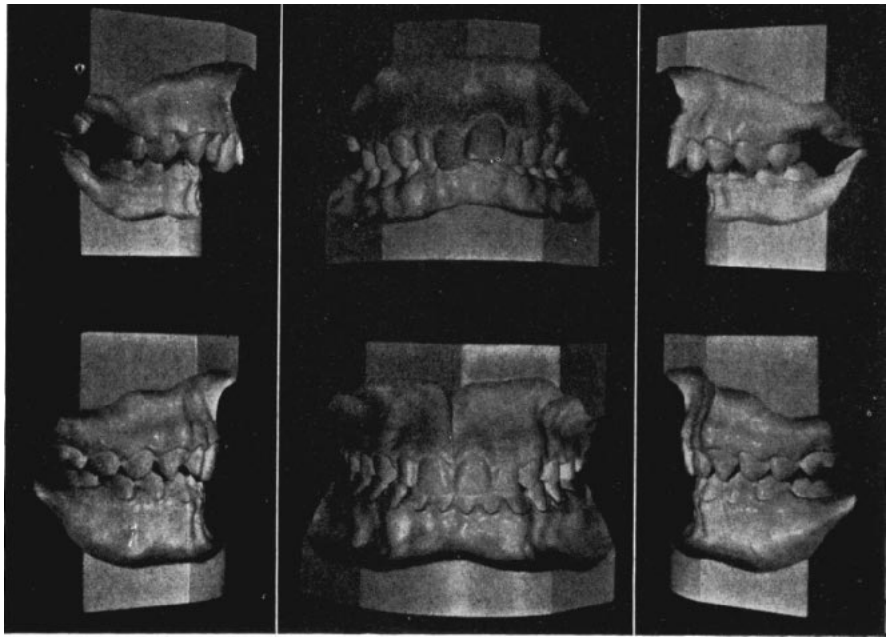

Fig. 2.—Casts, Case II, before (above) and after (below) treatment.

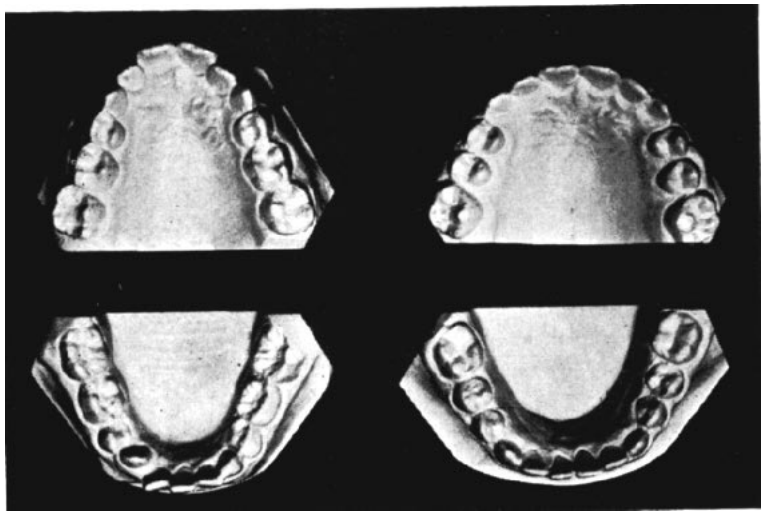

Fig. 3.—Occlusal view of casts of Case I.

2. Vegetables taken more readily than meat as a small child; now eats everything.

f. Growth.
1. Even until six years.
2. Accelerated between six and nine years.

II. *Family History.*

a. Health of parents, good.
b. Occlusion of parents.
1. Mother, normal.
2. Father, Class I.

III. *Disease History.*

a. Whooping cough at five years.
b. Rheumatic fever at six years—in bed one year.
c. Chicken pox and measles at eight years.
d. Mumps at eleven years.
e. Tonsils and adenoids removed at six years.

IV. *General Physical Examination.*

a. Four feet, nine inches, eighty-two pounds, slightly built.
b. Posture good.

V. *Dental and Orthodontic Physical Examination.*

a. Shape of face and cranium: face, oval; features sharply delineated; forehead well developed and prominent.
b. Musculature normal.
c. Lips: small, normal tone.
d. Tongue, size and rest position normal.
e. Osseous development normal.
f. Morphology of teeth: normal in shape, well-formed.
g. Type of malocclusion: Class I; constricted arches; blocked out lower right cuspid; slight protrusion of the anterior segment.
h. Pit and fissure cavities in first molars.

VI. *Case Analysis.*

a. Etiological factors.
1. Primary factors.
a. Mouth breathing.
b. Premature loss of lower right deciduous cuspid.
b. Both arches display lack of lateral development in premolar area.
c. Premature loss of deciduous lower right cuspid resulted in distal drifting of lower right lateral incisor into apposition with first bicuspid.

VII. *Outline of Objectives in Treatment.*

a. Attainment of normal arch breadth.
b. Reduction of protrusive upper anterior segment; realignment of mandibular dental units to provide space for erupting cuspids with-

out moving the mandibular incisal segment into protrusion.

c. Prognosis—favorable.

VIII. *Outline of Means of Obtaining Tooth Movement.*

a. Edgewise arch mechanism used throughout the case. The lower right deciduous second molar was removed immediately upon starting the case. The extra space utilized by deciduous molar because of its greater mesial-distal width over the succeeding second permanent bicuspid was immediately used by moving the first bicuspid distally. Right lateral mandibular incisor was moved mesially to provide space for the incoming right mandibular cuspid. Mandibular molars were tipped distally to enhance anchorage. Mandibular bicuspids were slow in erupting and some time was lost in awaiting their arrival. Upon their eruption, they were banded. A stabilizing maxillary arch of .022″ x .028″ was placed with mild tip backs. A light arch, .020″ x .022″ was inserted in the mandibular denture with hooks mesial to the cuspids for intermaxillary Class III elastics. In about three weeks' time, the mandibular teeth were over their bony base and the light arch was replaced with a stabilizing arch of .022″ x .028″. In the maxillary denture, the heavy arch was replaced with a light arch and Class II mechanics instituted. When normal mesio-distal relations were obtained, two ideal arches of .0215″ x .028″ were measured and placed with proper torque, second order bends, and "T" spurs anterior to molar sheaths, and the case was routinely finished.

IX. *Total Treatment Time.*

a. One year and nine months.

b. Hawley retainer used in maxillary denture. Cuspid to cuspid fixed retainer in mandibular denture. Excellent facial musculature of the patient makes retention less of a problem than is usually encountered.

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