Borderline Cases: Part III

F. M. Hapak, D.D.S.

R. A. Hanes, D.D.S.

J. T. Lindquist, D.D.S.

M. M. Stoner, D.D.S.

J. M. Vorhies, D.D.S.

This, the third and final in a series of observations of the records of nine borderline cases is presented for the perusal of those members of orthodontic organizations who had an opportunity to see firsthand the records, or others, who have seen in this journal* the reproduction of the same records. The original presentation was made in two distinct parts: the first, before treatment records and a questionnaire with questions directed to the audience as to how they would treat the case; the second, presentation of the clinical results of treatment at approximately the time of retention and a summary of the results of the questionnaire.

Comments noted in the returned questionnaires and from individuals at the time pointed to the fact that it would be our obligation and responsibility to produce the follow-up records, out of retention, to give definitive substance, or the lack of it, to our contention that there is a need for careful analysis and that individual cases require individual plans or alternatives.

Fortunately, and in spite of the fact that several patients moved out of state and with the usual difficulties encountered in getting older patients to respond, we were able to procure records on all of the cases.

The headplate tracings and line drawings were prepared by the same individual who constructed tracings and drawings for our previous publication (Part II); it is noteworthy that it was not anyone in our group.

So for your affirmation, or reproach, or the great in between, we have accepted the challenge and realize that we will be the ones to profit most from your observations.

Case No. One

A tooth positioner was worn four hours per day in a prescribed manner of exercise and during sleeping hours for a period of four months. After four months the exercise period was discontinued and the positioner was worn during sleeping hours only for a period of six months. After six months the positioner was discontinued.

Skeletal changes have not been marked between after treatment and follow-up records. Actually there has been a small amount of general skeletal growth in all directions. The tracings of this male, like all tracings, are superposed on the nasal floor with the SN lines parallel.

The soft tissue profile has changed markedly between treatment and follow-up records with the soft tissue chin becoming more pronounced while the upper and lower lips have become less full.

Dental changes in the same period can be summarized as a mild relapse in rotations especially in the lower central incisal area. The overbite is now in the fifty percent area. The buccal occlusion has held very well.

* April and July, 1962.

Case No. Two

The patient wore a Hawley upper retainer for four years, although instructed to leave it out after eighteen months. The lower retainer was removed after five years, and the patient moved from the state at that time. The final records, three years out of retention, were obtained by another orthodontist. The third molars have been removed.

There has been very little change skeletally except for an orderly pattern of continued growth. The mandible seems to have had a slightly greater increment of horizontal growth than the rest of the face.

The facial contour, though not ideal, has maintained or bettered the improvement achieved during the treatment.

The occlusion has, if anything, improved since retention except for the slight popping of some contacts in the upper and lower anterior segments. The angle of the occlusal plane has improved.

Case No. Three

The lower retainer was a soldered lingual with bands on first permanent molars—not a cuspid to cuspid as stated in Volume 32, No. 3, page 134.

An upper Hawley retainer with a bite plate was worn for eighteen months full time, part time for another eighteen months. The lower lingual was removed after five and one-half years, seventeen months prior to the final records seen here. All third molars have been removed.

Expected growth has not materialized either vertically or horizontally. There has been very little growth since age sixteen.

Facial change has been minimal with a slight recurrence of petulant lip posture as vertical dental height tended to recur.

The occlusion has held well and the change in the axial inclination of the anteriors has remained better than expected. The tendency for gingival recession on the lower right central incisor and lower left cuspid was noted in January 1962. Adjustments were made in the bite plate. The recession appears to be no worse than when originally noted. The tendency for collapse in vertical dimension has been strong.

The arch length has held satisfactorily although the lower anteriors have buckled slightly.

Case No. Four

No retention was placed in the mandibular arch. A maxillary palatal retainer was worn full time for approximately eighteen months. At that time the patient was instructed to wear the retainer at night only. The mandibular teeth were holding up fine. Eight months later slight collapse of the mandibular anterior teeth was noted and a lower acrylic removable retainer was seated to be worn at night along with the maxillary retainer. The patient discarded both retainers a year later and the case was allowed to remain out of retention. The following changes were noted three and one half year later, six years after completion.

Vertical growth occurred as well as forward growth at the chin point; this resulted in a general retrusion of the denture. Very slight changes in incisal position were noted and positive migration of the mandibular and maxillary molars demonstrated.

Very little maturation of the soft tissue profile was noted. However, the facial balance is still acceptable.

There is mild collapse of the mandibular anterior teeth and a reoccurrence of bicuspid rotations. The overbite increased two millimeters and the tendency for constriction of the bicuspid-first molar area in the maxillary

arch is noted. The occlusion seems to be holding fairly well at this time.

Case No. Five

A maxillary palatal and a soldered lower canine to canine were used as retainers. The maxillary retainer was worn full time, including eating, for one year and then at night only for the next five years. At the time these records were taken, the patient was still wearing the maxillary retainer at night and the mandibular retainer was still in place. The mandibular retainer was removed at this time.

The patient was fourteen years old when appliances were removed and showed an unusual amount of growth during the five year period between appliance removal and time of the follow-up records. Forward growth in the maxilla and downward and forward growth of the mandible are recorded.

The combination of the skeletal changes and continued growth of the nose resulted in a balanced, but somewhat retrusive, contour of the soft tissue around the mouth.

Maxillary and mandibular arch form seems to be holding up quite well. A slight flaring in the maxillary anterior teeth is noted. We can conclude that the retention has been fairly effective for this length of time.

Case No. Six

A retainer was worn in the maxillary arch full time for one year, then at night only, until the present time. A lower canine to canine retainer is still being worn.

Marked maturational changes are noted. The bony chin is forward with a corresponding displacement of the soft tissue pad. A somewhat lesser amount of vertical growth is also noted.

It is interesting to find that the anterior displacement of the mandible is associated with a retrusion of the mandibular anterior teeth and the labial displacement of the maxillary anterior teeth.

This boy demonstrates considerable maturation and a rather well-balanced soft tissue profile with continued growth of the chin.

The growth factors in the mandible affected the tooth position. Even though a positive canine to canine retainer was present, mandibular anterior teeth demonstrate displacement and overlapping contacts. The forces of growth were great enough to cause changes in the canine position with adjustment of the mandibular incisors. A corresponding change in the maxillary canines is also noted and they have moved labially out of the general line of the occlusion.

Case No. Seven

This patient was retained in November 1957. Retention consisted of upper and lower acrylic retainers which were worn on a full-time basis for two years and thereafter at night time only for an additional two years. All four third molars were extracted before retainers were discarded. Follow-up records were taken ten years after treatment.

Cephalometric records indicate the change from retention to follow-up headplates was principally in the vertical dimension. The bony chin appears more prominent.

The photographs reveal maturational changes with a straighter profile and larger chin button.

The models show a return of some rotations and an increase in overbite from the last records. Stability was judged as at least satisfactory.

Case No. Eight

The patient was retained in December 1959 after having worn a tooth positioner for two months. Retention

consisted of an upper Hawley retainer and a lower cuspid to cuspid retainer. The upper was worn full time for twenty-one months and at night for an additional six months. The lower cuspid to cuspid was removed in August 1964. Follow-up records were taken in September 1966.

Final cephalometric readings were almost unchanged from the after-treatment readings. There was little change facially except a slight flattening of the profile.

The models reveal the return of some rotations in the upper arch but remarkable stability in the lower. Overbite increased also.

Case No. Nine

Maxillary retention, with a Hawley, was discontinued after two and a half years. At the end of three and a half years all four third molars were removed, as was the cuspid to cuspid soldered lingual. Subsequent to this the patient moved to another state.

A summarized conclusion regarding the skeletal changes between the onset of retention and the follow-up records is that the mandible has attained a demonstrable anterior position due to growth.

Other skeletal changes may be described as minimal or the expected concomitant alterations. The most noticeable facial change is an increase in the prominence of the chin point and mandible.

Unfortunately, the patient lost her maxillary right second molar during the postretention period. The overbite has held very well which was a surprise to the operator, as was the minimal rotational changes in the mandibular incisal region. Since the time interval is over two and a half years since retention had been discontinued, it is felt that this case will be relatively stable.

Discussion

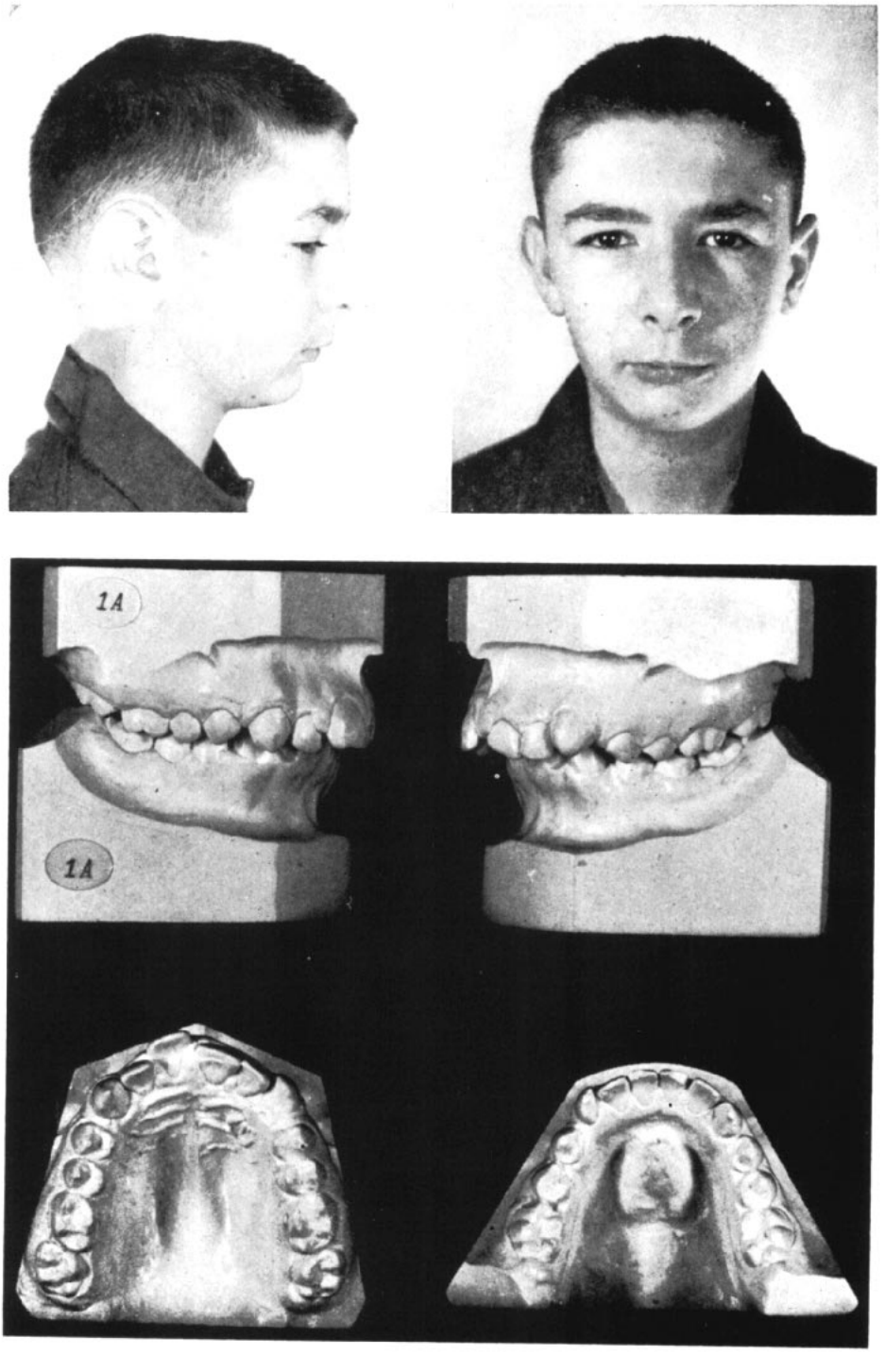
We hope that through this progressive series we have been successful in our original premise which was to make a plea for flexible treatment analyses tailored to the needs of individual cases, rather than adhering to an inflexible mode of treatment.

Collectively, we do not expect everyone to agree with us, with our original analyses, and/or plans of treatment. However, rather than detailing the intricacies of the treatment changes, we are allowing the records of the cases to speak for themselves.

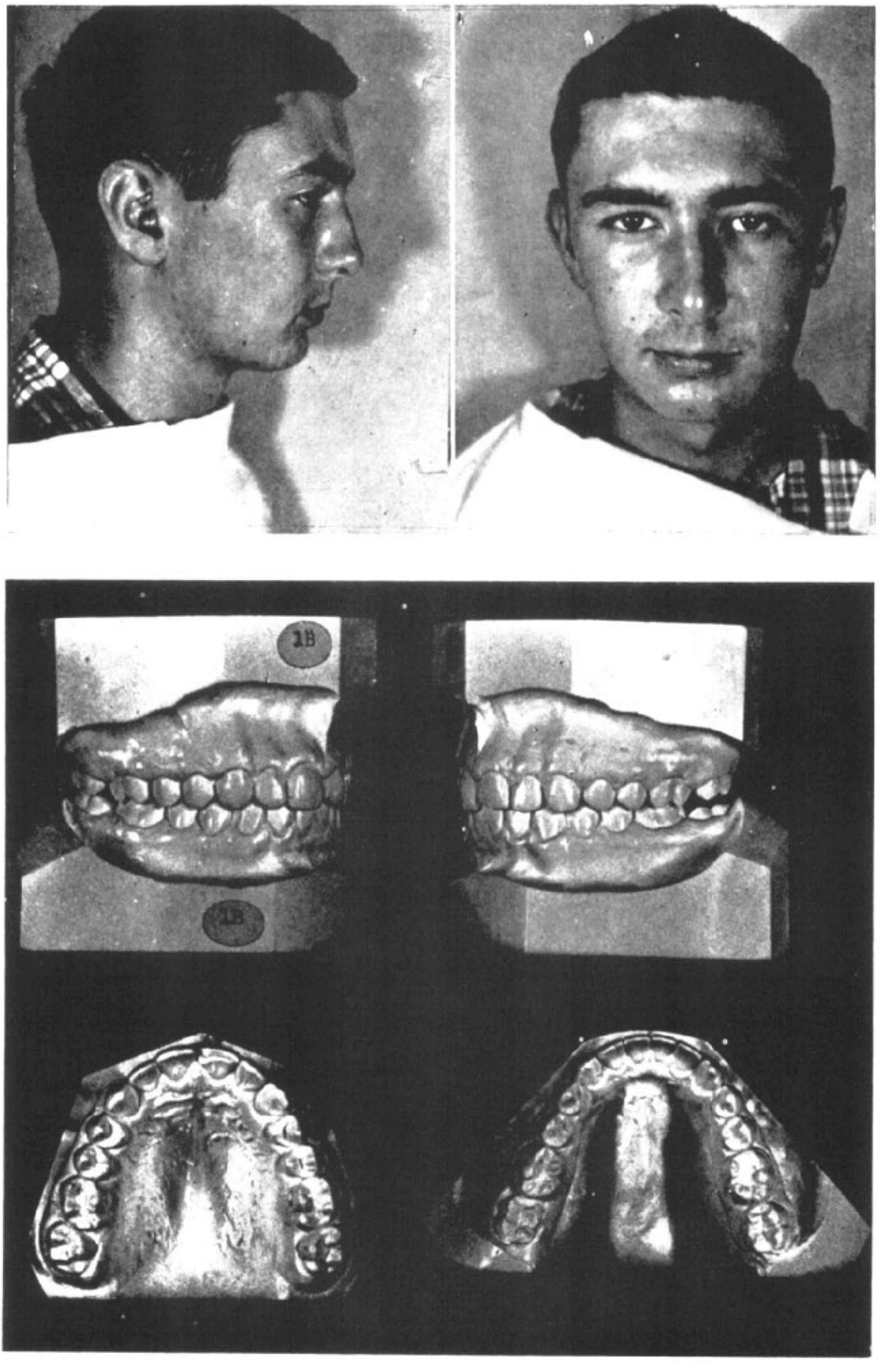
Conclusions

Whether an orthodontic case is treated extraction or nonextraction, the ultimate and only true measure of achievement of the management resides in the denture's ability to bear and withstand the infliction of natural forces successfully over a period of time, unfettered and unrestrained.

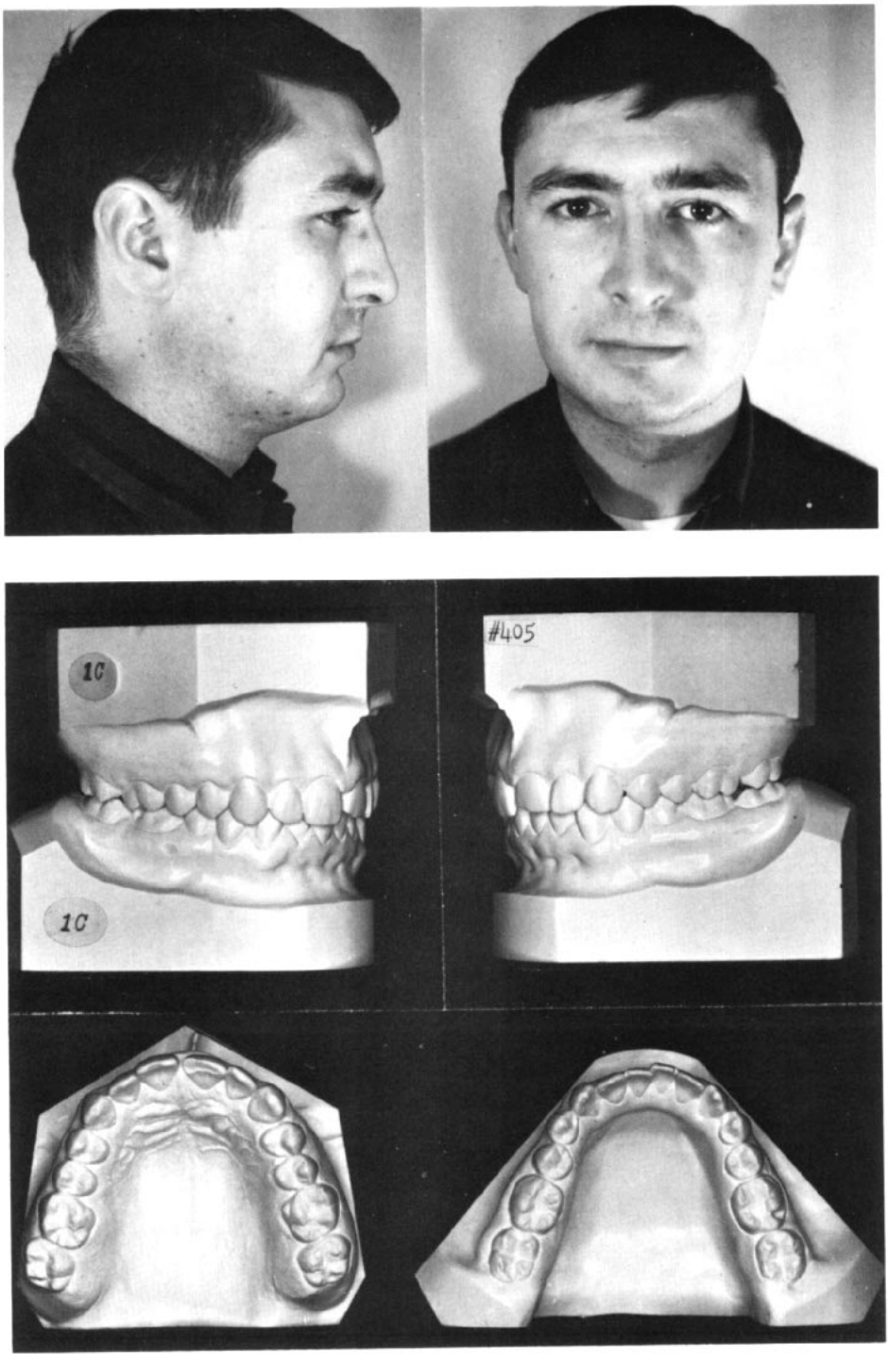
Indianapolis, Ind.



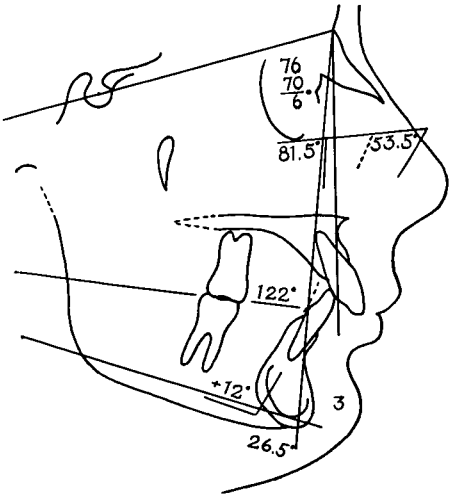
Case 1-A

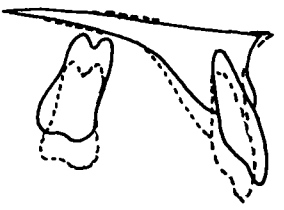


Case 1-B

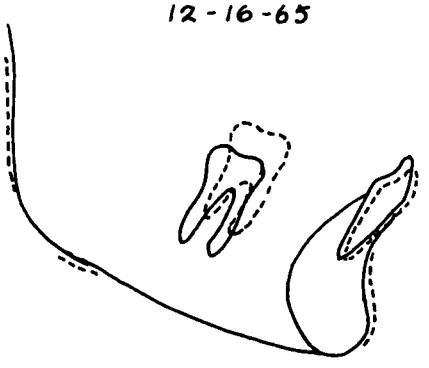


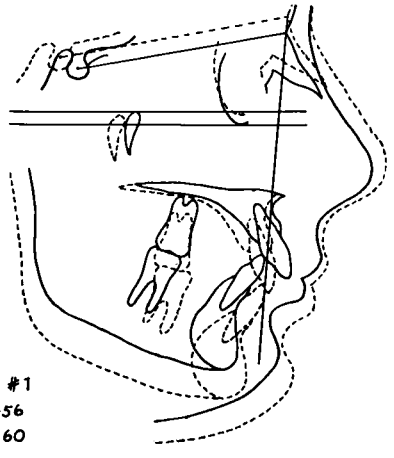
Case 1-C



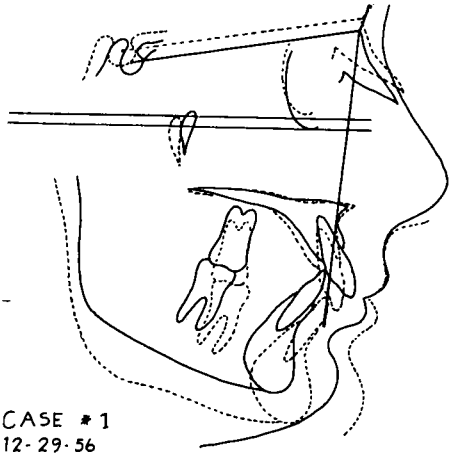


CASE #1
12-25-56
12-16-65





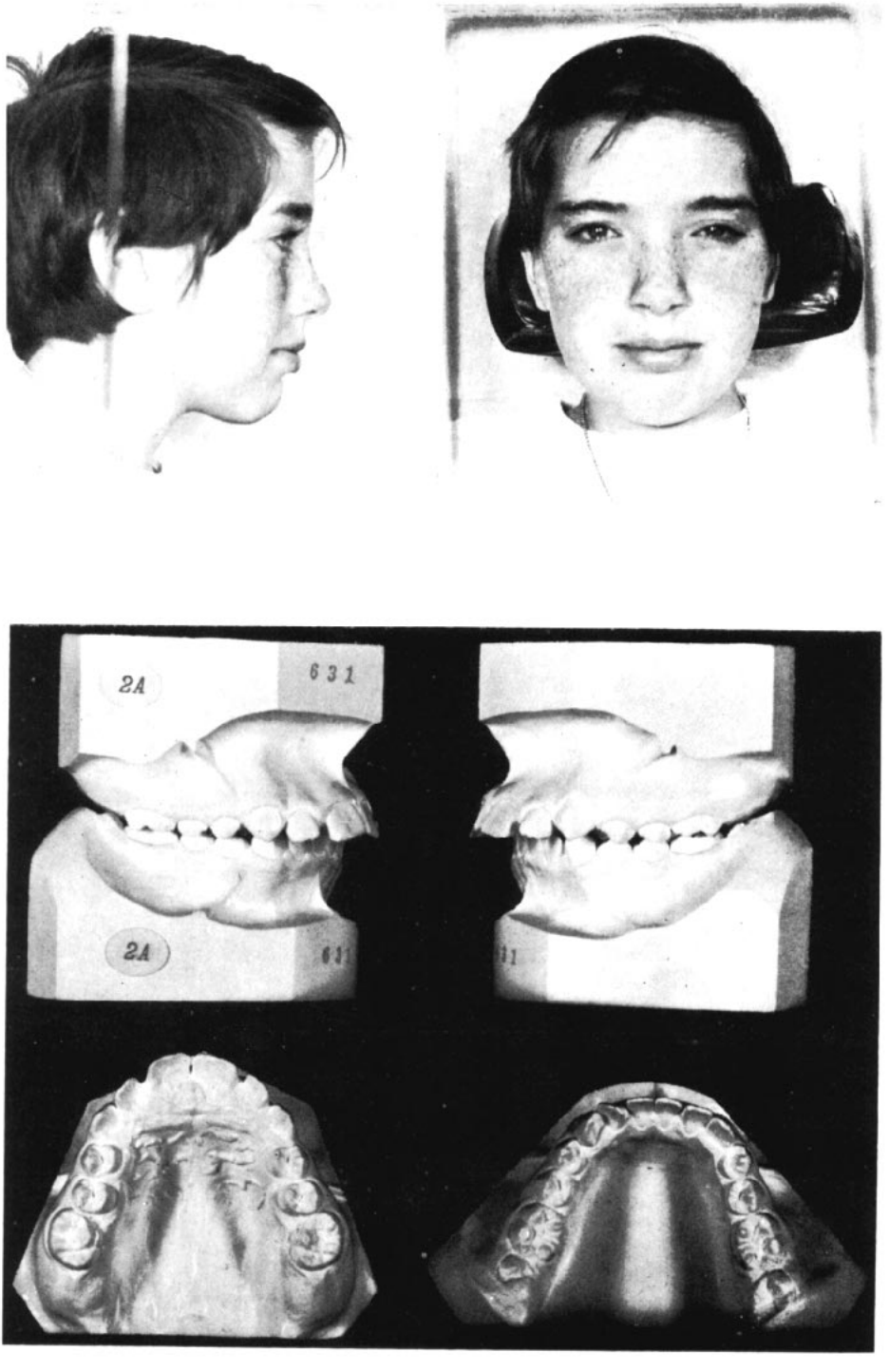
CASE #1
12-29-56
5-7-60



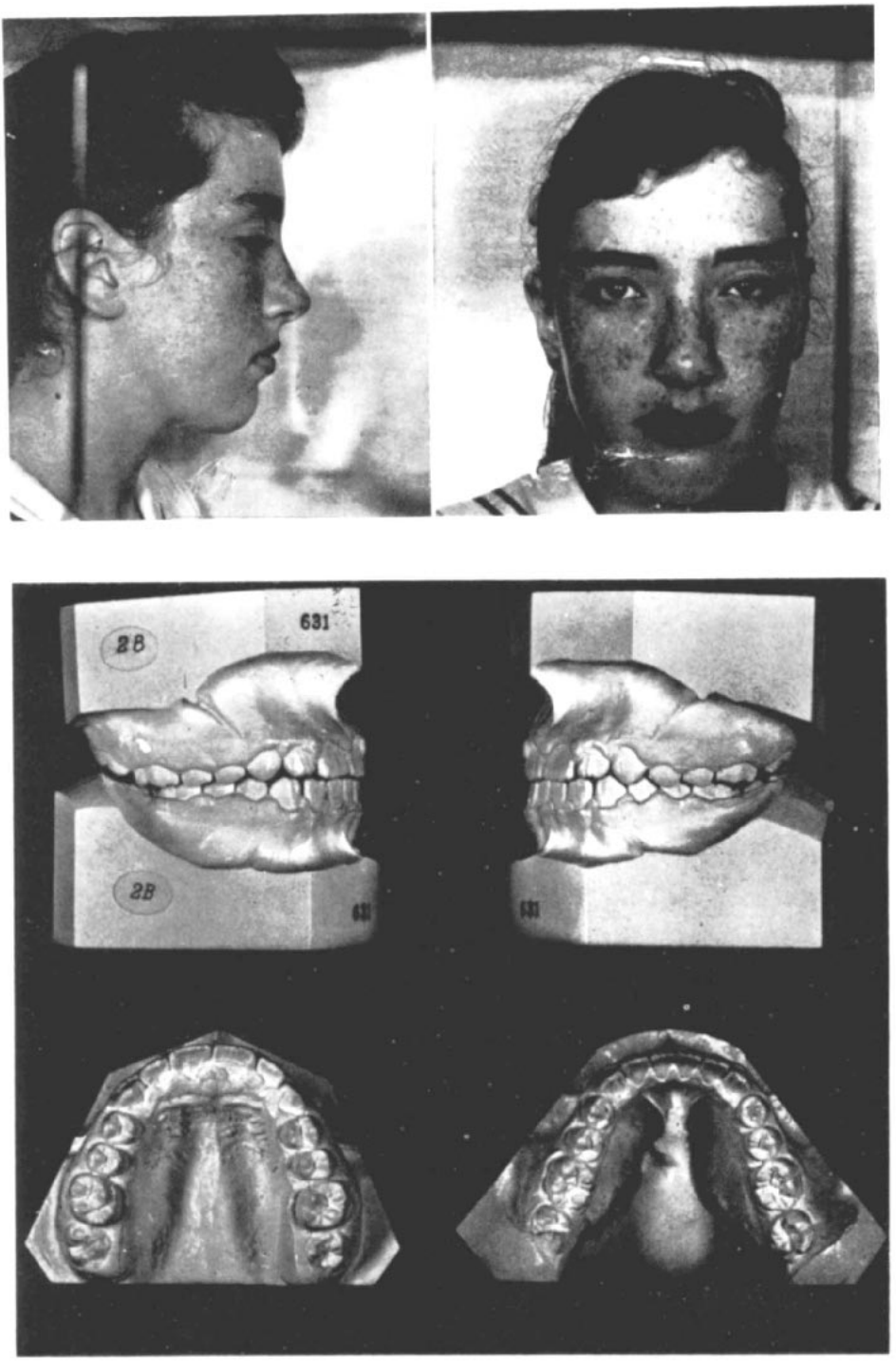
CASE #1
12-29-56
12-16-65

Case 1

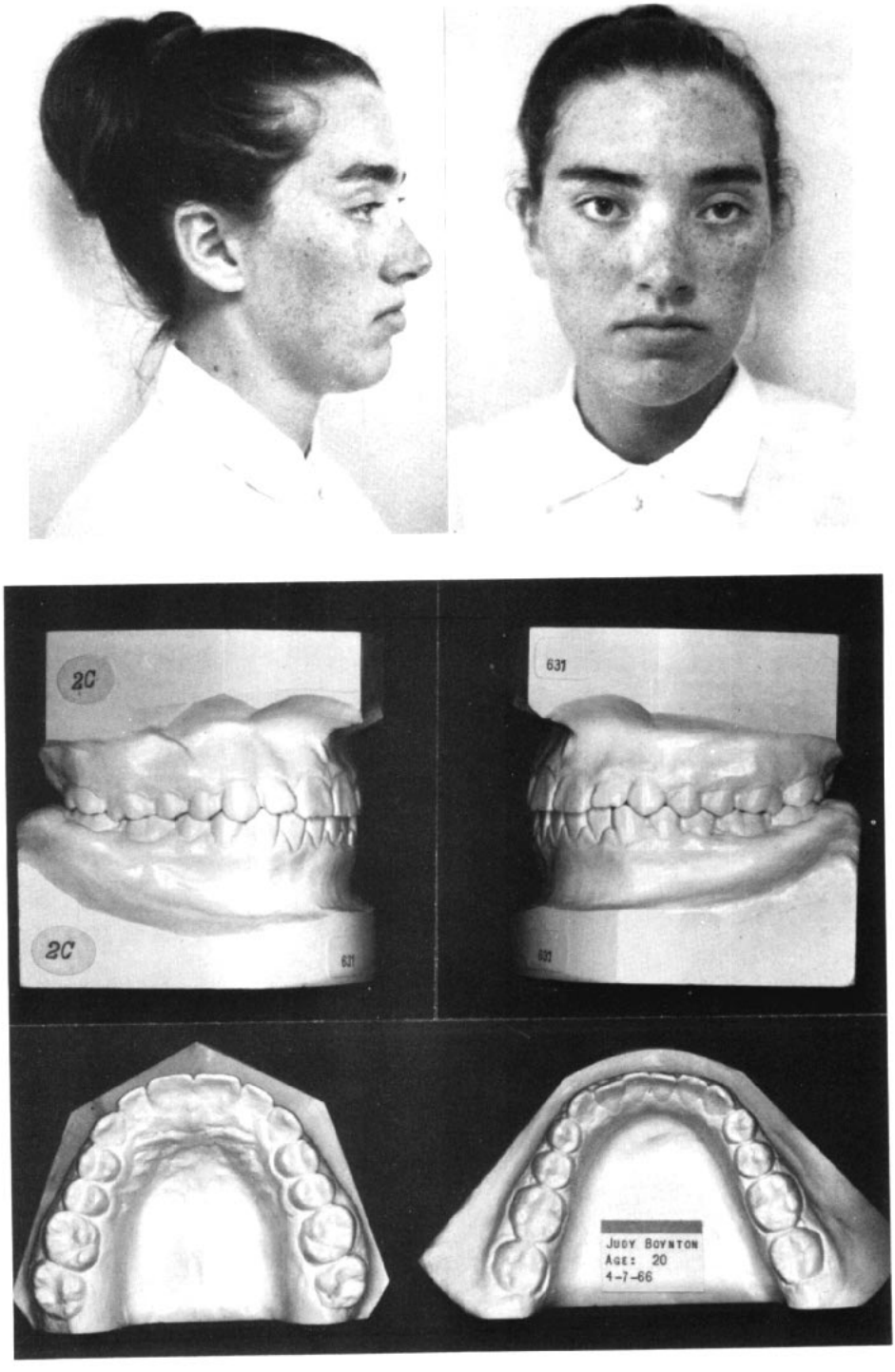
	12-29-56	5-7-60	12-16-65
SNA	76°	74°	76°
SNB	70	72	73
ANB	6	2	3
$\overline{1}$ to NB	26.5	27.5	23
Po to NB (mm)	3	3.5	3.5
$\underline{1}$ to $\overline{1}$	122°	132°	136.5°
Facial angle	81.5	84.5	84
$\overline{1}$ to Mand. plane	+12	+17	+12.5
FMA	24.5	18	18
FMIA	53.5	55	59.5



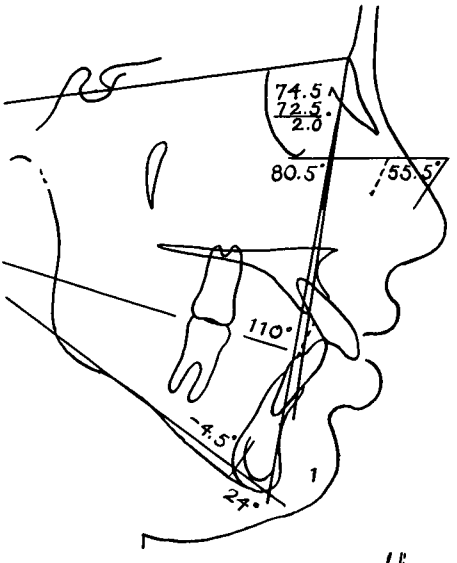
Case 2-A

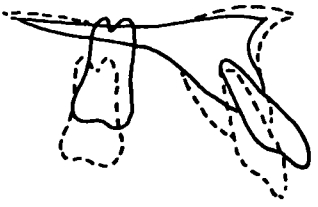


Case 2-B

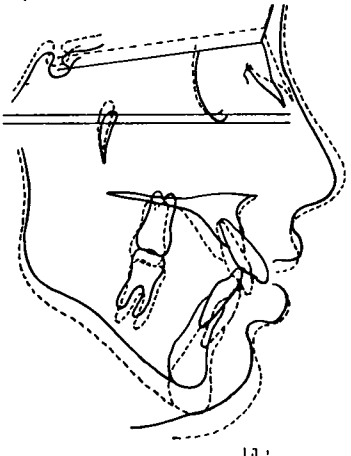


Case 2-C

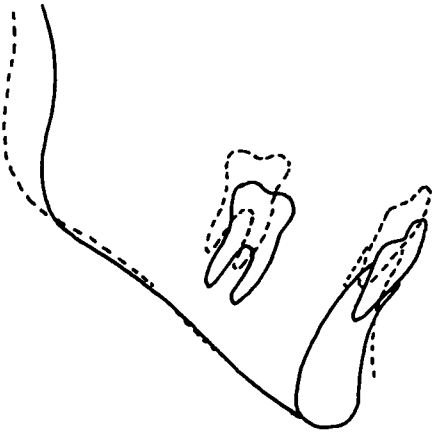


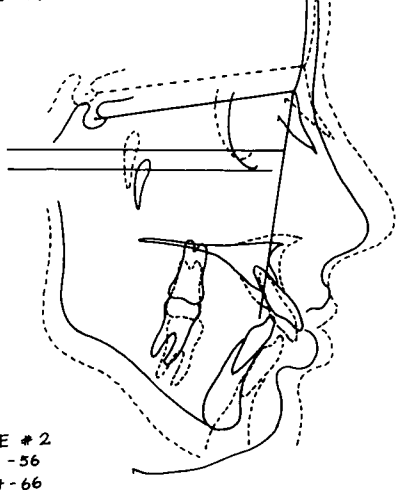


CASE #2
11-1-56
4-4-66



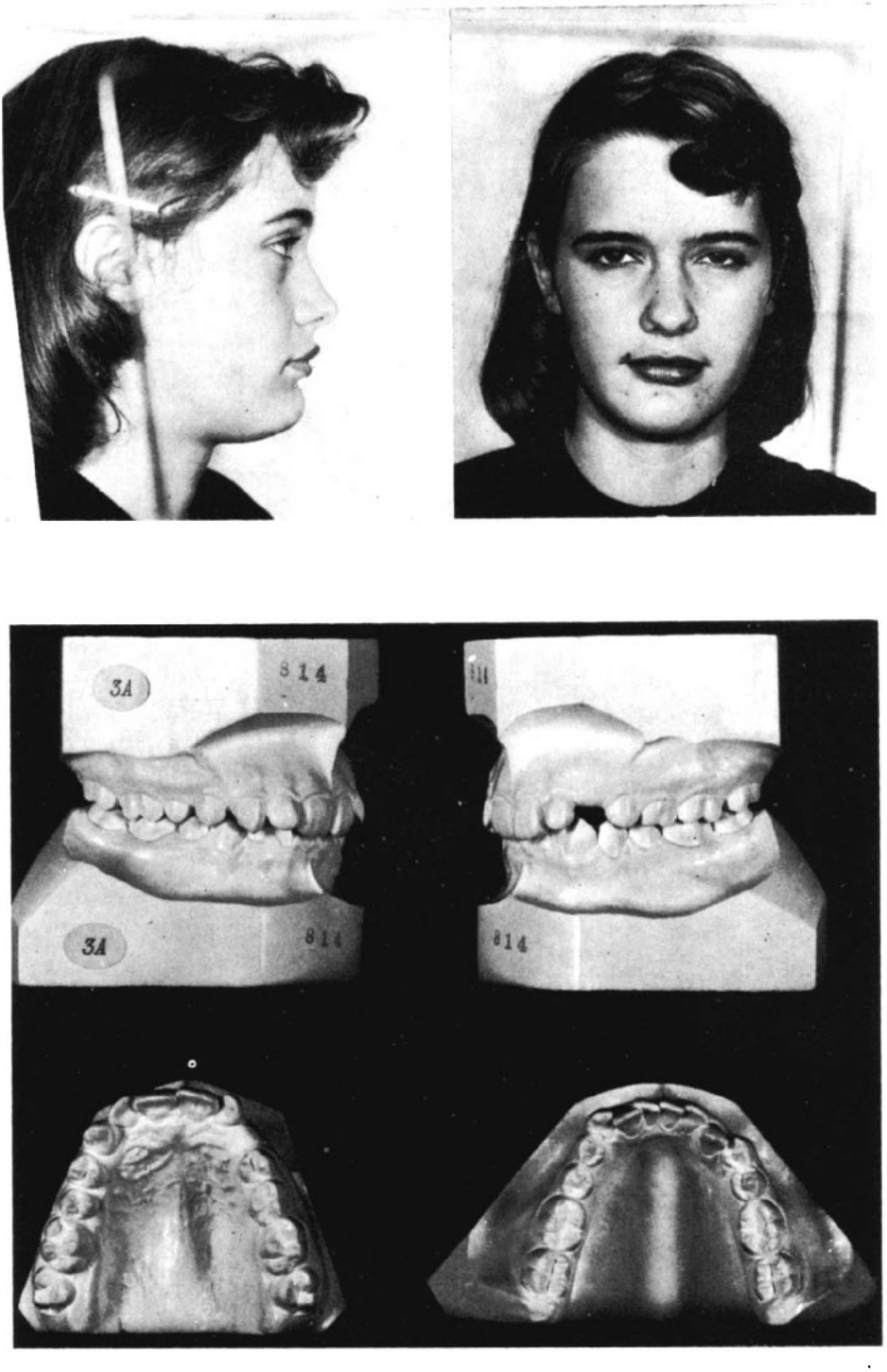
CASE #2
11-1-56
6-16-59



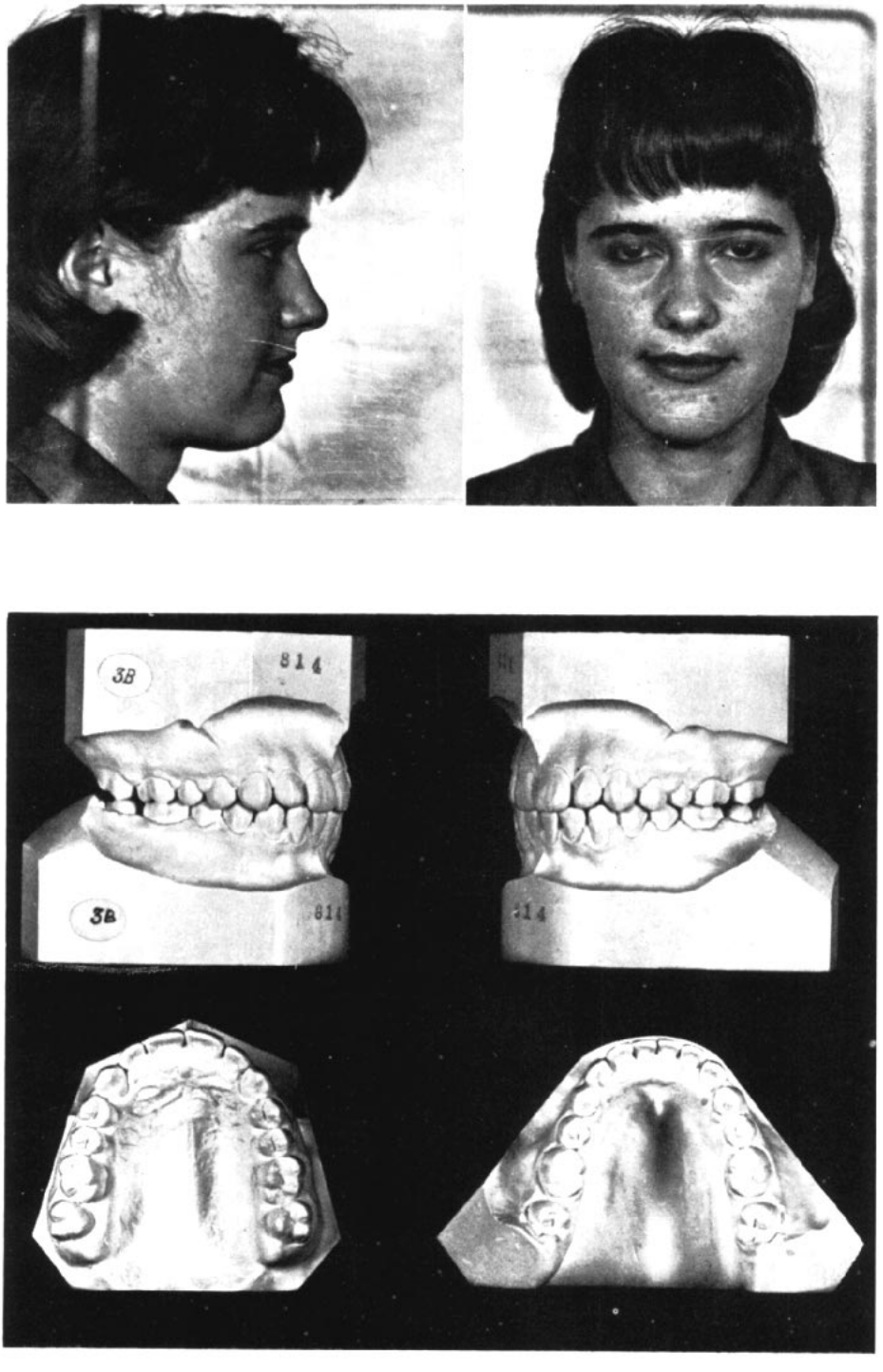


CASE #2
11-1-56
4-4-66

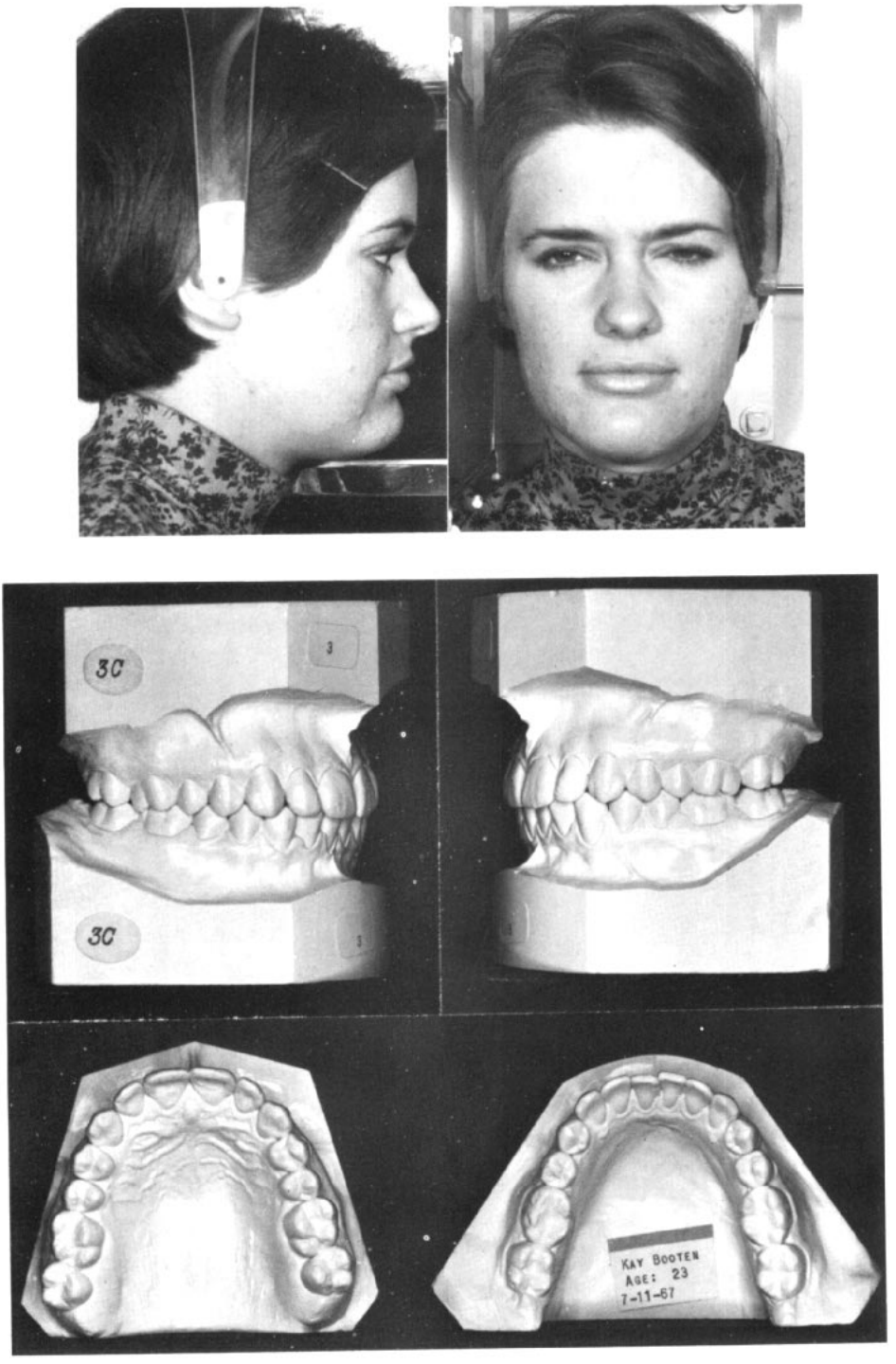
	Case 2		
	11-1-56	6-16-59	4-4-66
SNA	74.5°	75.5°	77.5°
SNB	72.5	74	75.5
ANB	2	1.5	2
$\underline{1}$ to NB	24	22.5	26
Po to NB (mm)	1	1.5	0
$\underline{1}$ to $\underline{1}$	110°	124°	122.5°
Facial Angle	80.5	82	80
$\underline{1}$ to Mand. plane	—4.5	—8	—4
FMA	39.5	40.5	38
FMIA	55.5	58	56



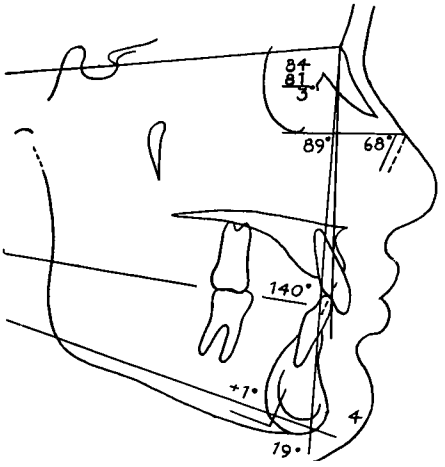
Case 3-A

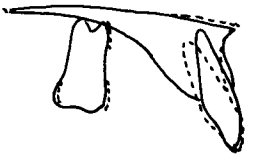


Case 3-B

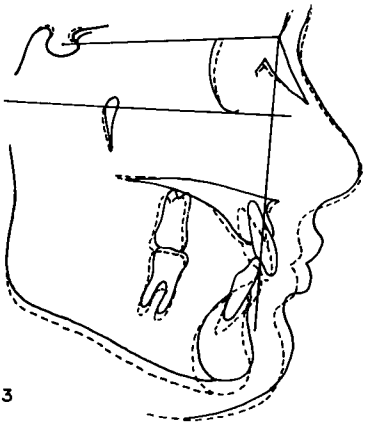


Case 3-C

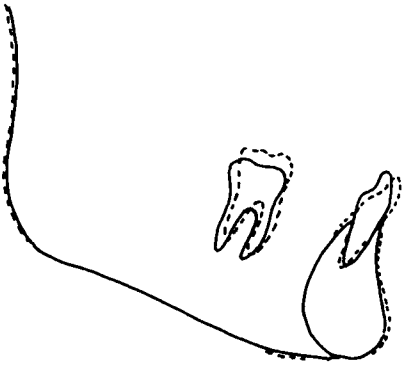


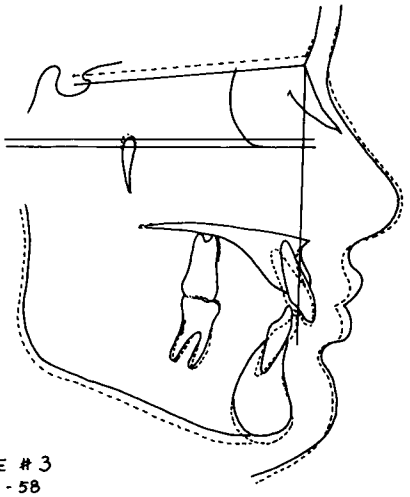


CASE #3
11-17-58
7-11-67



CASE #3
11-17-58
12-15-60

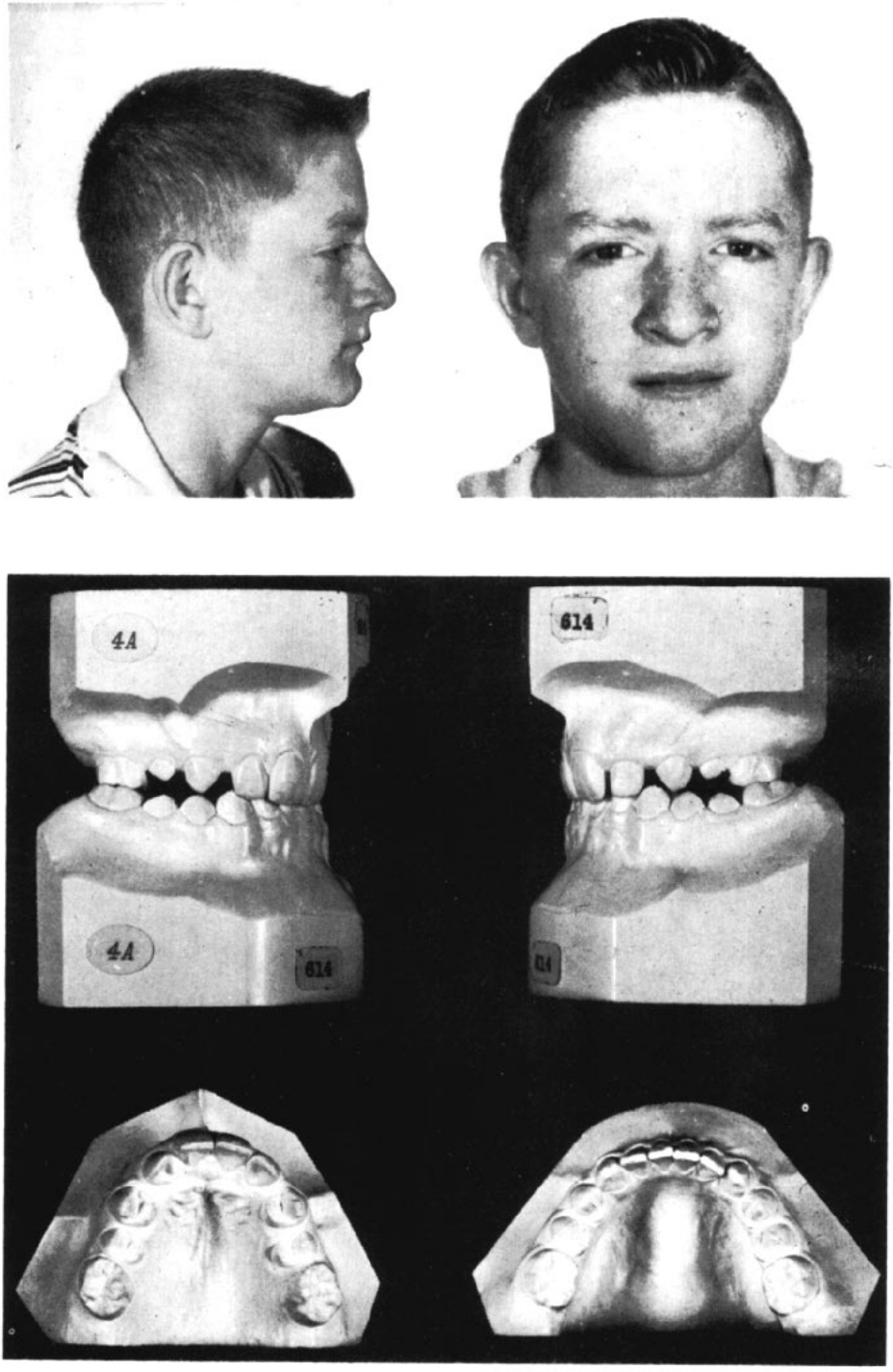




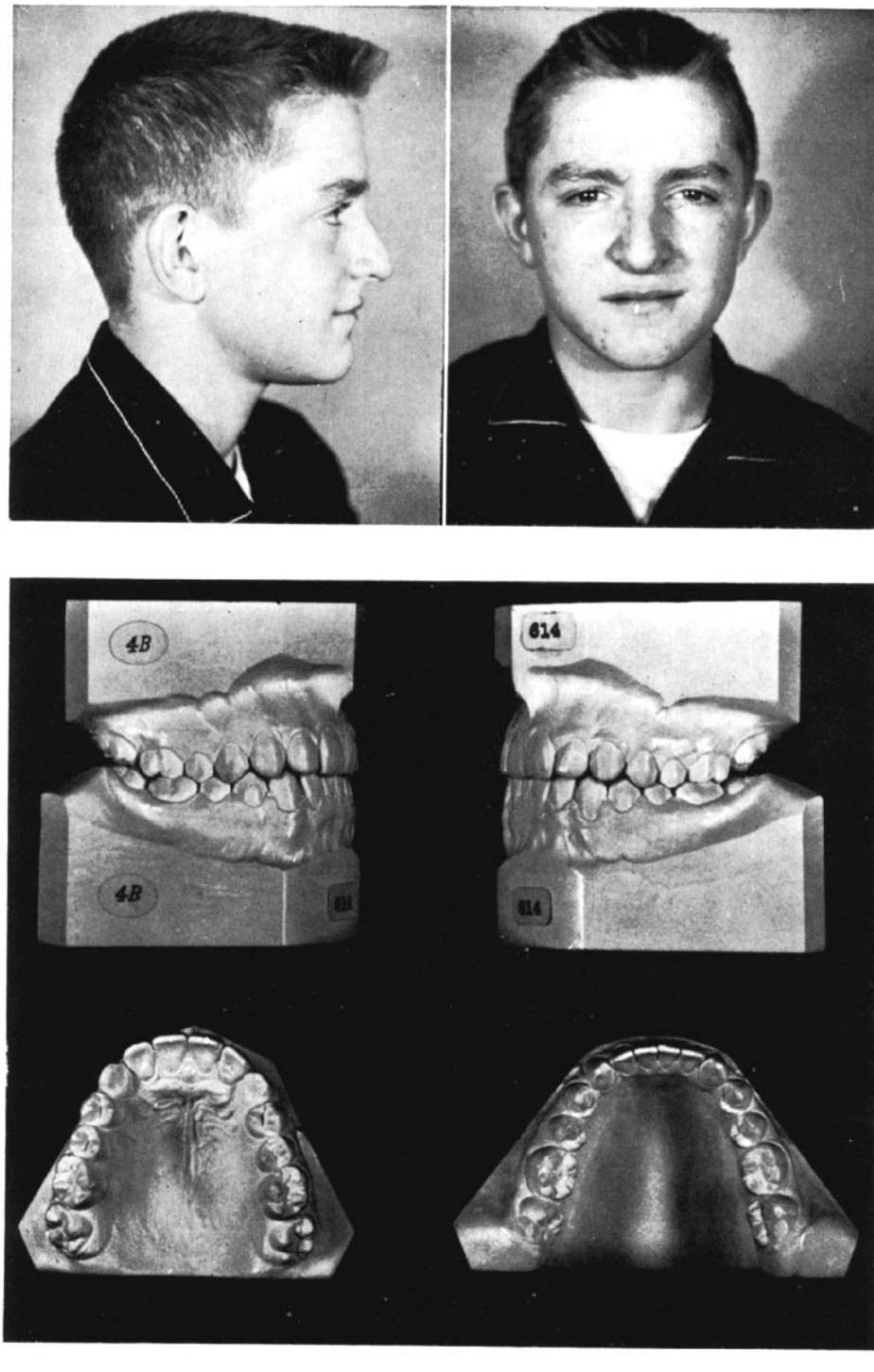
CASE #3
11-17-58
7-11-67

Case 3

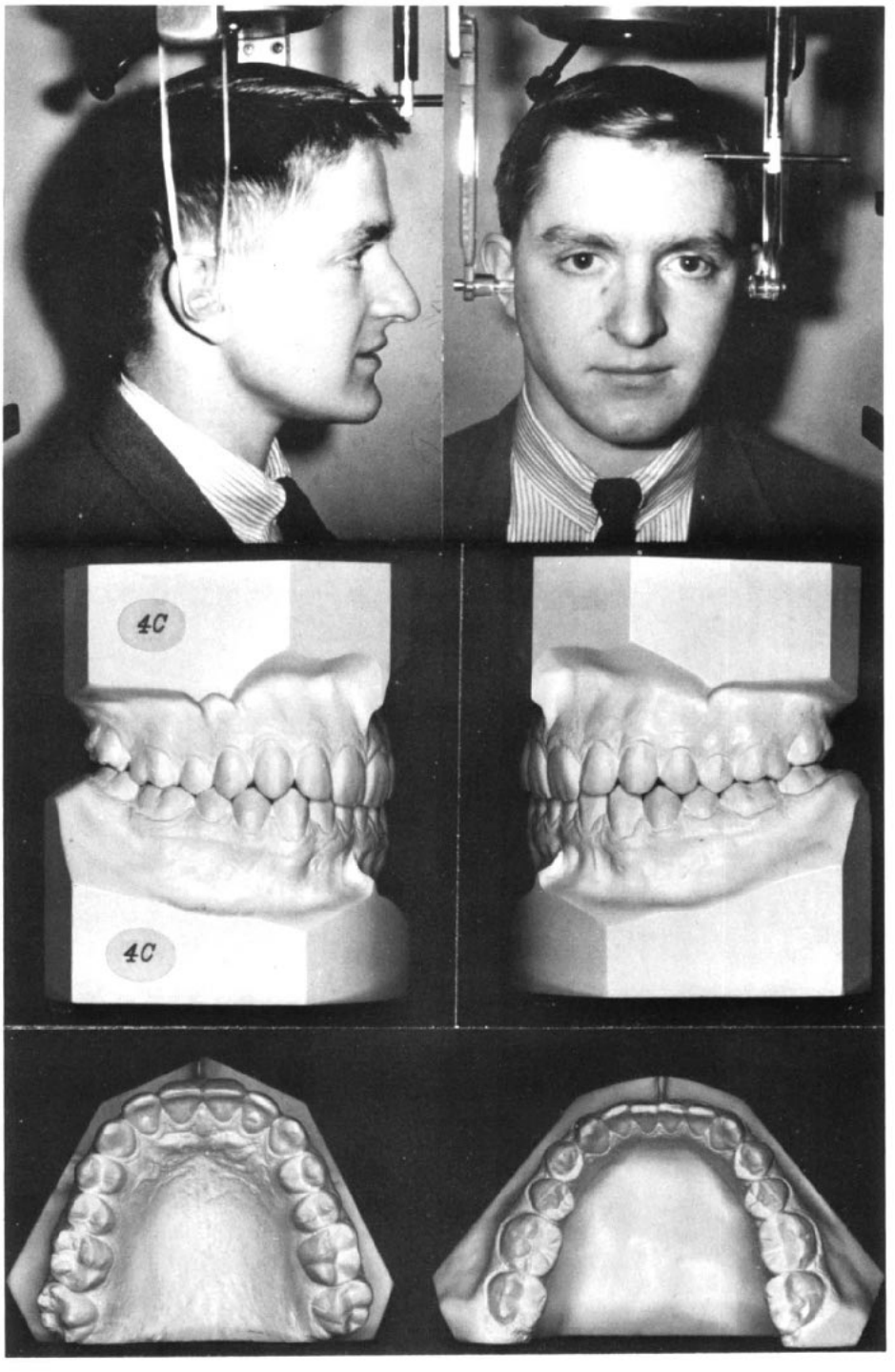
	11-17-58	12-15-60	7-11-67
SNA	84°	84°	83°
SNB	81	81	81
ANB	3	3	2
$\overline{1}$ to NB	19	30.5	27.5
Po to NB (mm)	4	4.5	4
$\underline{1}$ to $\overline{1}$	140°	120°	121.5°
Facial Angle	89	88	88
$\overline{1}$ to Mand. plane	+1	+11	+8
FMA	21.5	23.5	23
FMIA	68	55.5	59



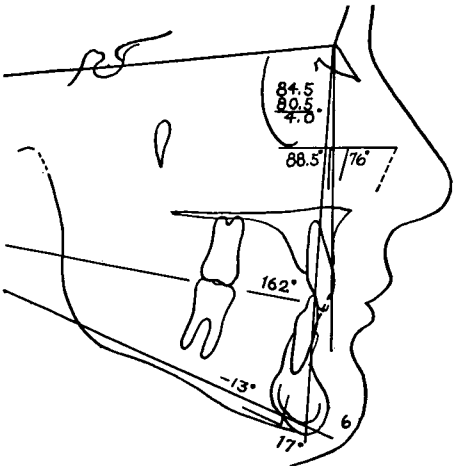
Case 4-A

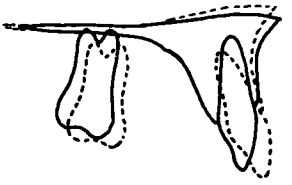


Case 4-B

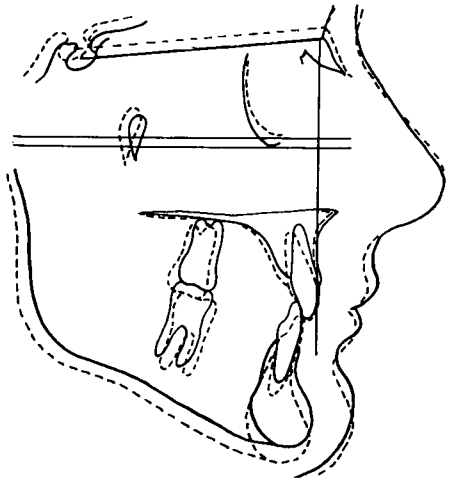


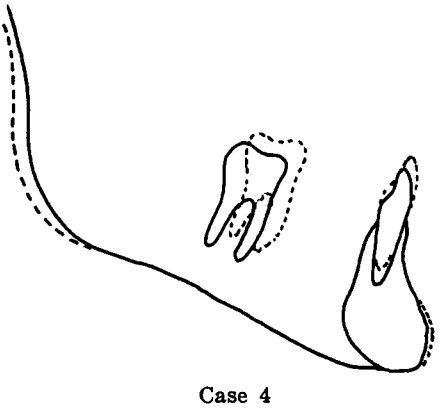
Case 4-C

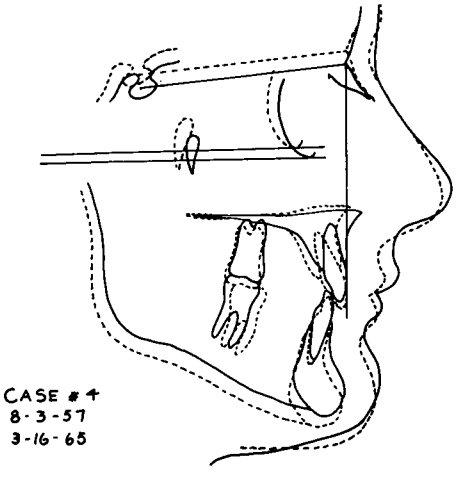




CASE #4
8-3-57
3-16-65

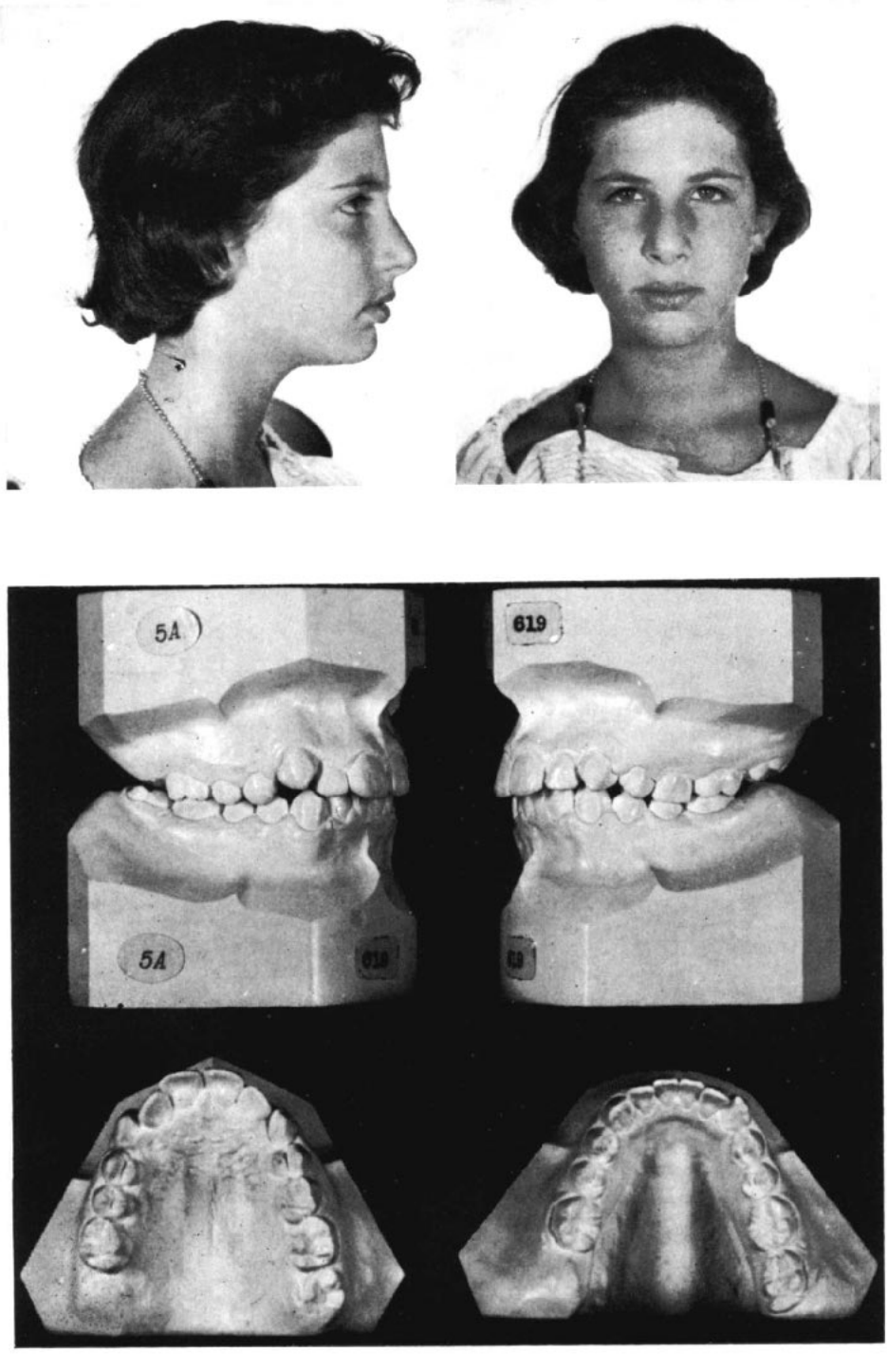




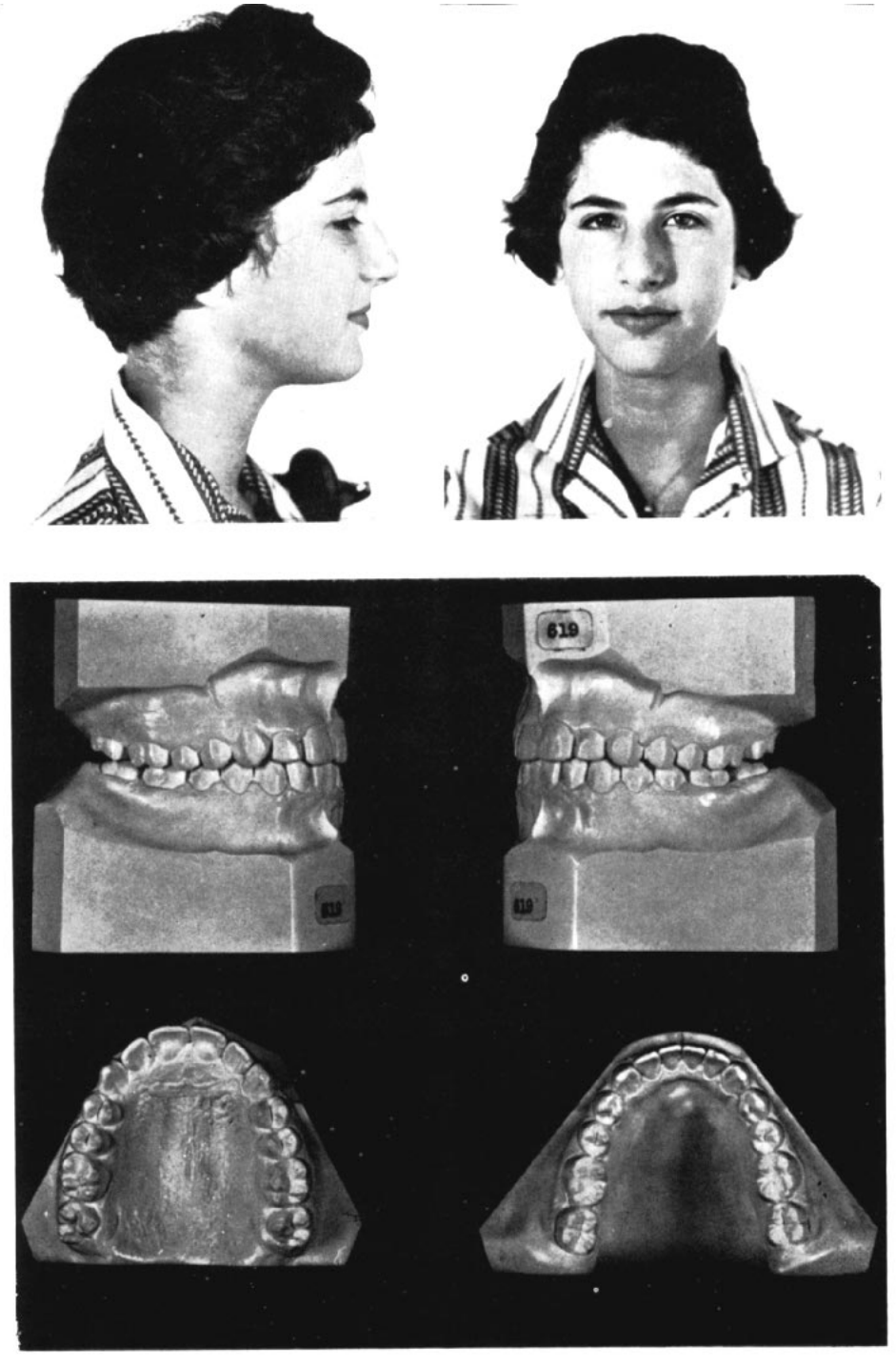


CASE #4
8-3-57
3-16-65

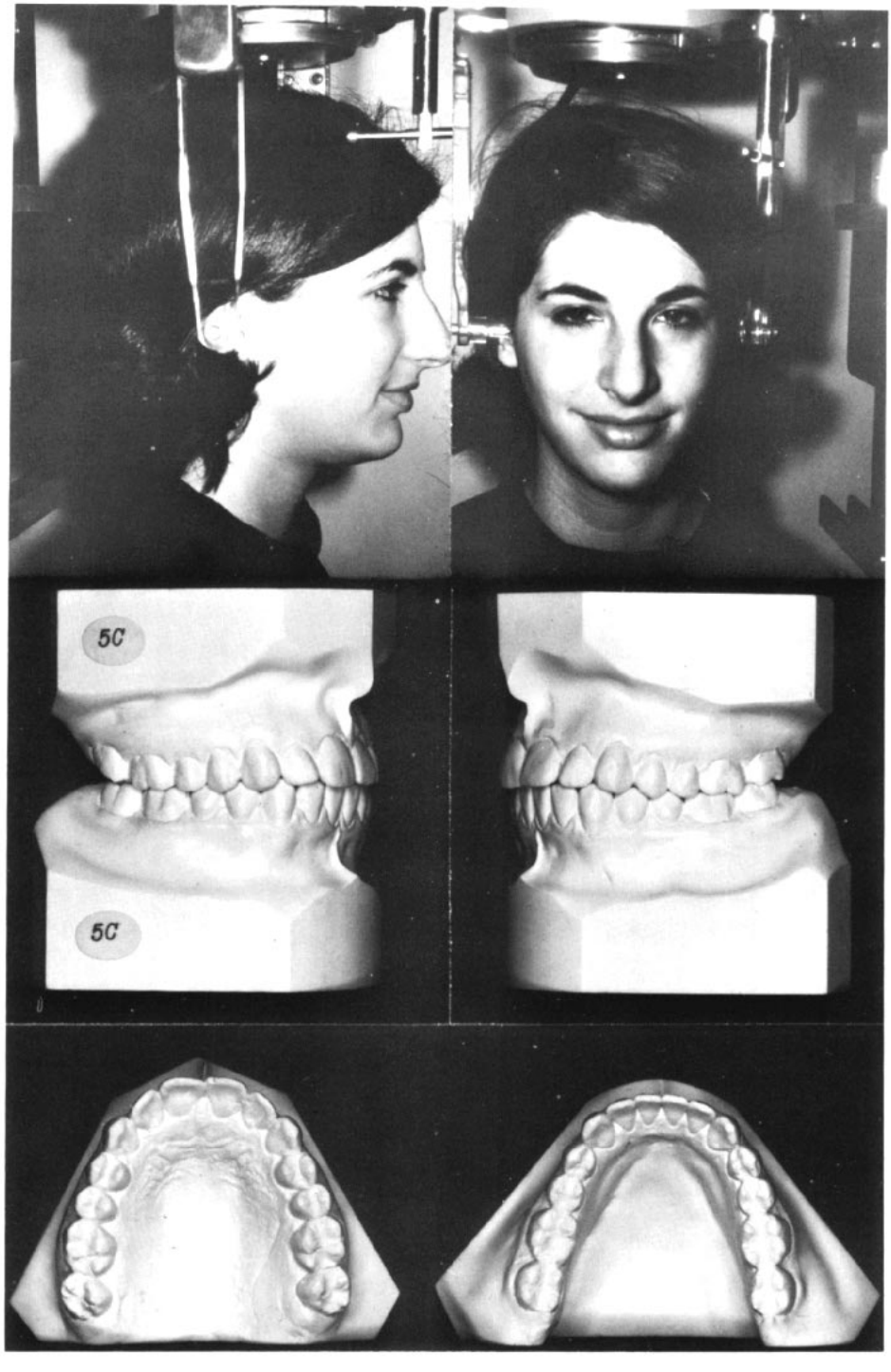
	Case 4		
	8-1-57	6-1-59	3-16-65
SNA	84.5°	83°	81°
SNB	80.5	80.5	81
ANB	4	2.5	0
$\overline{1}$ to NB	17	14.5	11.5
Po to NB (mm)	6	6.5	7
$\underline{1}$ to $\overline{1}$	162°	147°	145.5°
Facial Angle	88.5	89	88.5
$\overline{1}$ to Mand. plane	—13	—8.5	—10
FMA	27	27.5	26
FMIA	76	71	74



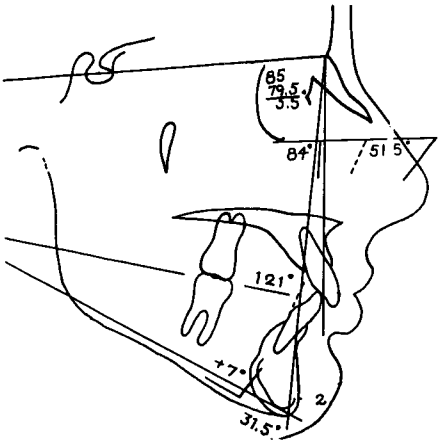
Case 5-A

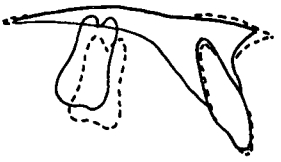


Case 5-B

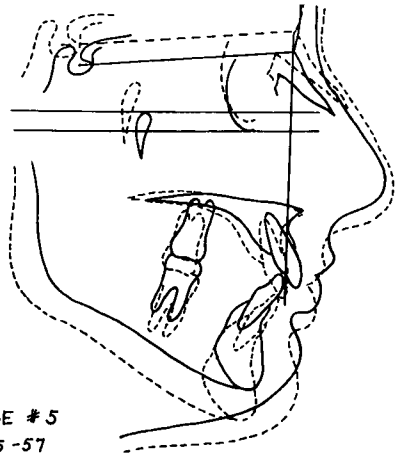


Case 5-C

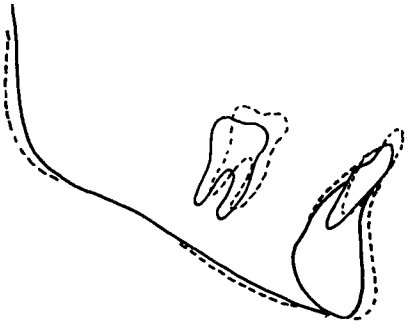


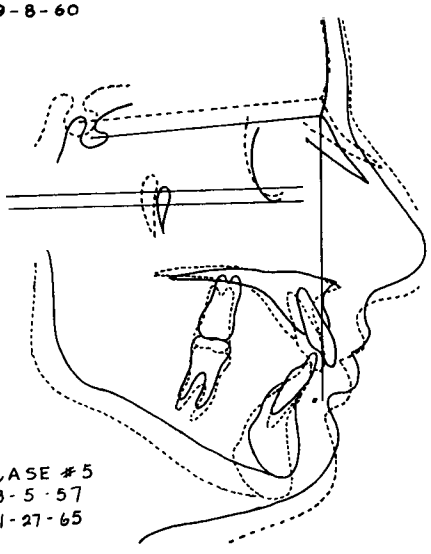


CASE #5
8-5-57
11-27-65



CASE #5
8-5-57
9-8-60

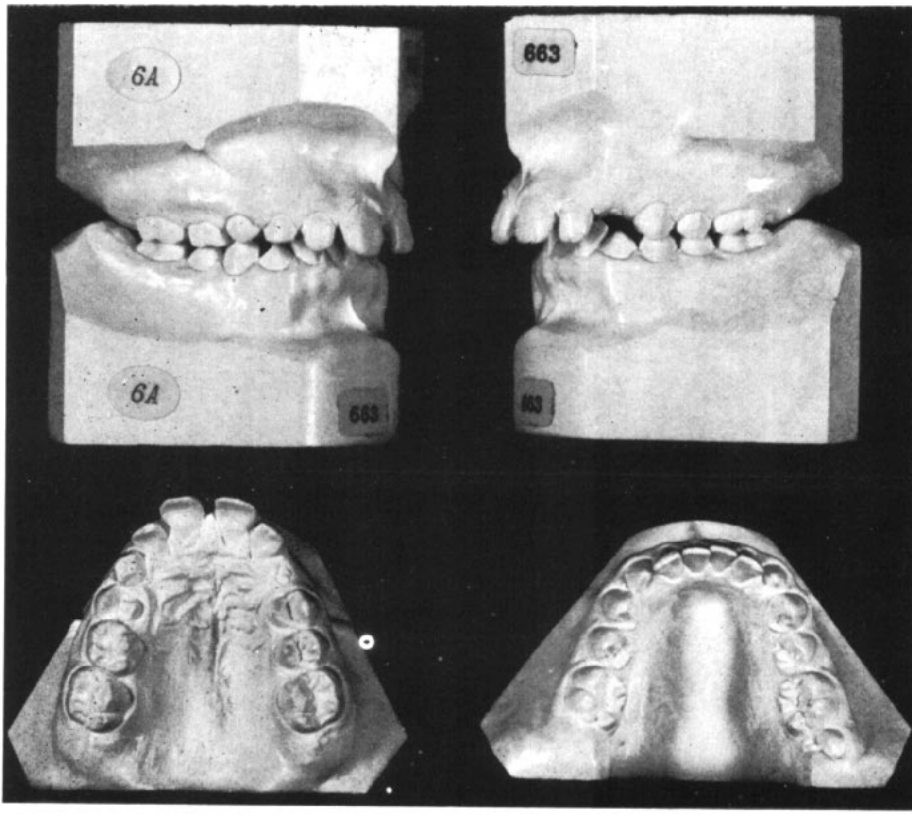




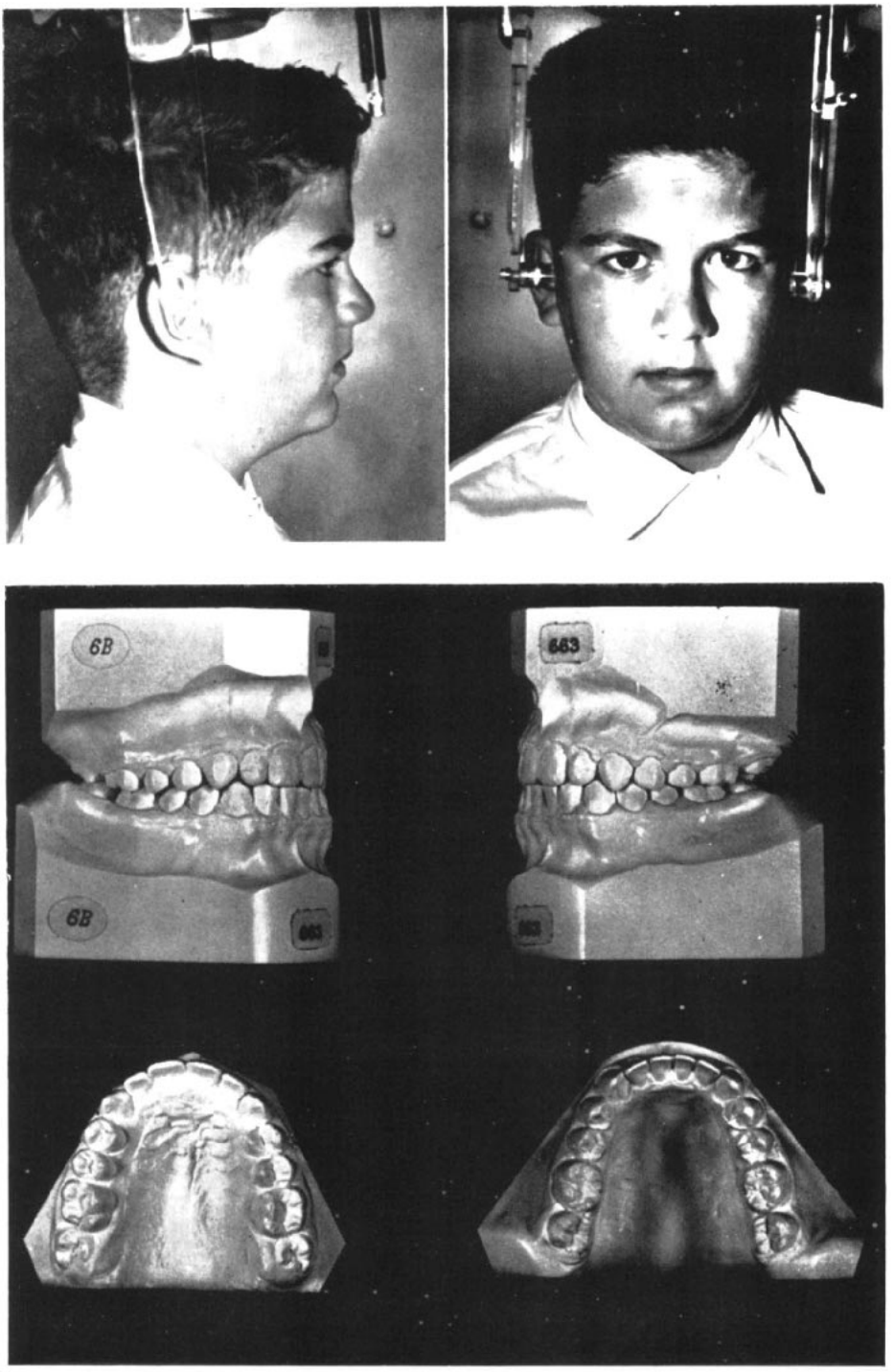
CASE #5
8-5-57
11-27-65

Case 5

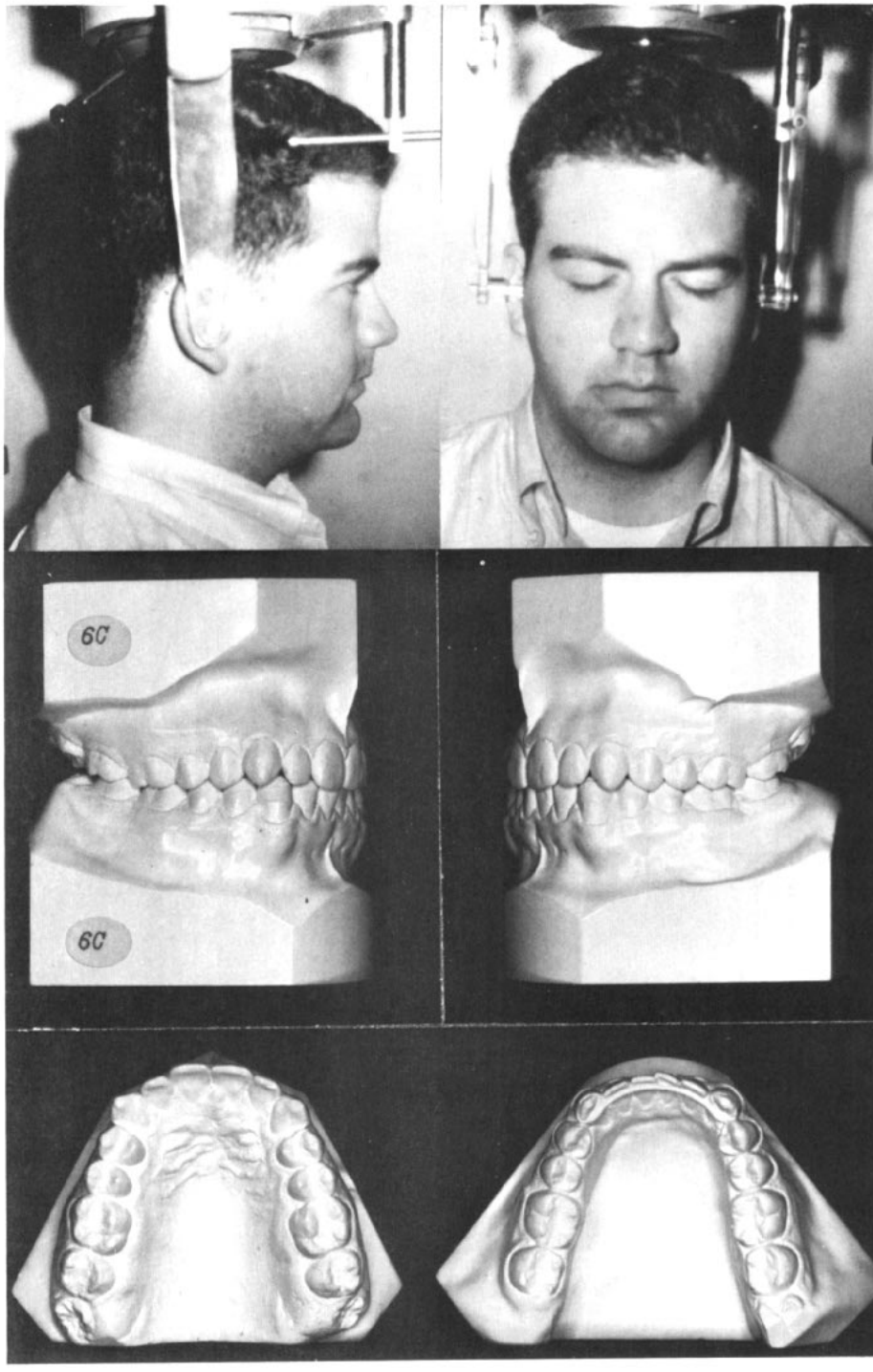
	8-5-57	9-8-60	11-27-65
SNA	85°	82°	82°
SNB	79.5	79	78.5
ANB	5.5	3	3.5
1 to NB	31.5	30.5	27
Po to NB (mm)	2	3	3
1 to 1	121°	128°	125°
Facial Angle	84	85	83.5
1 to Mand. plane	+7	+5	+2
FMA	31.5	32	32
FMIA	51.5	53	56



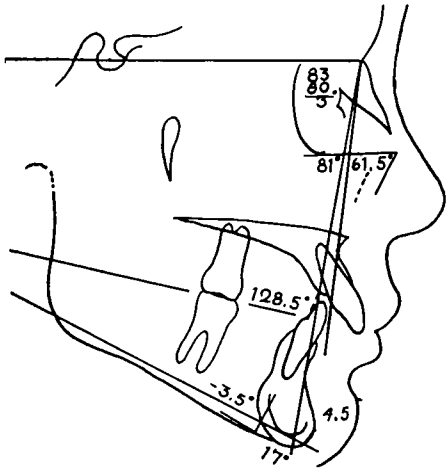
Case 6-A

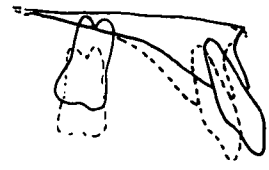


Case 6-B

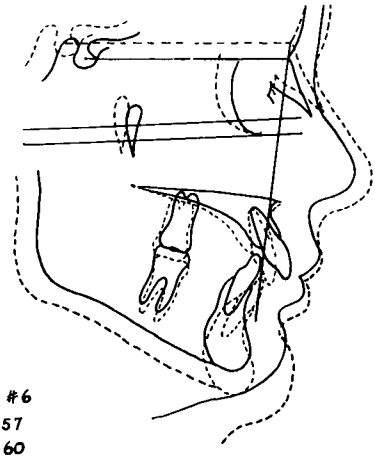


Case 6-C

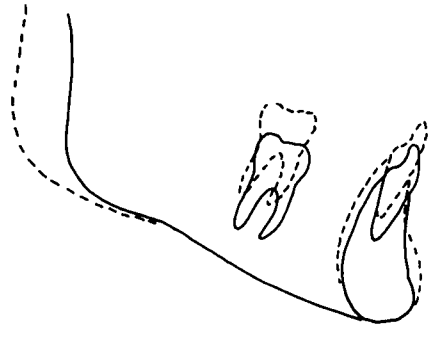


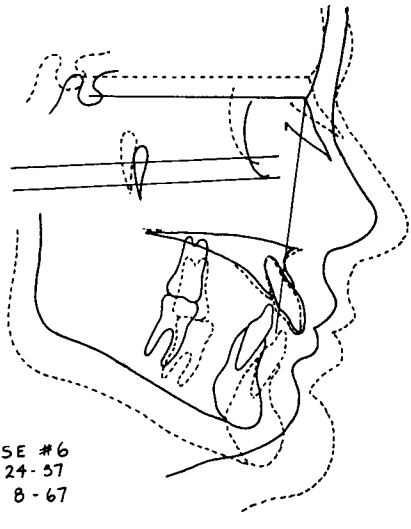


CASE #6
10-24-57
6-8-67



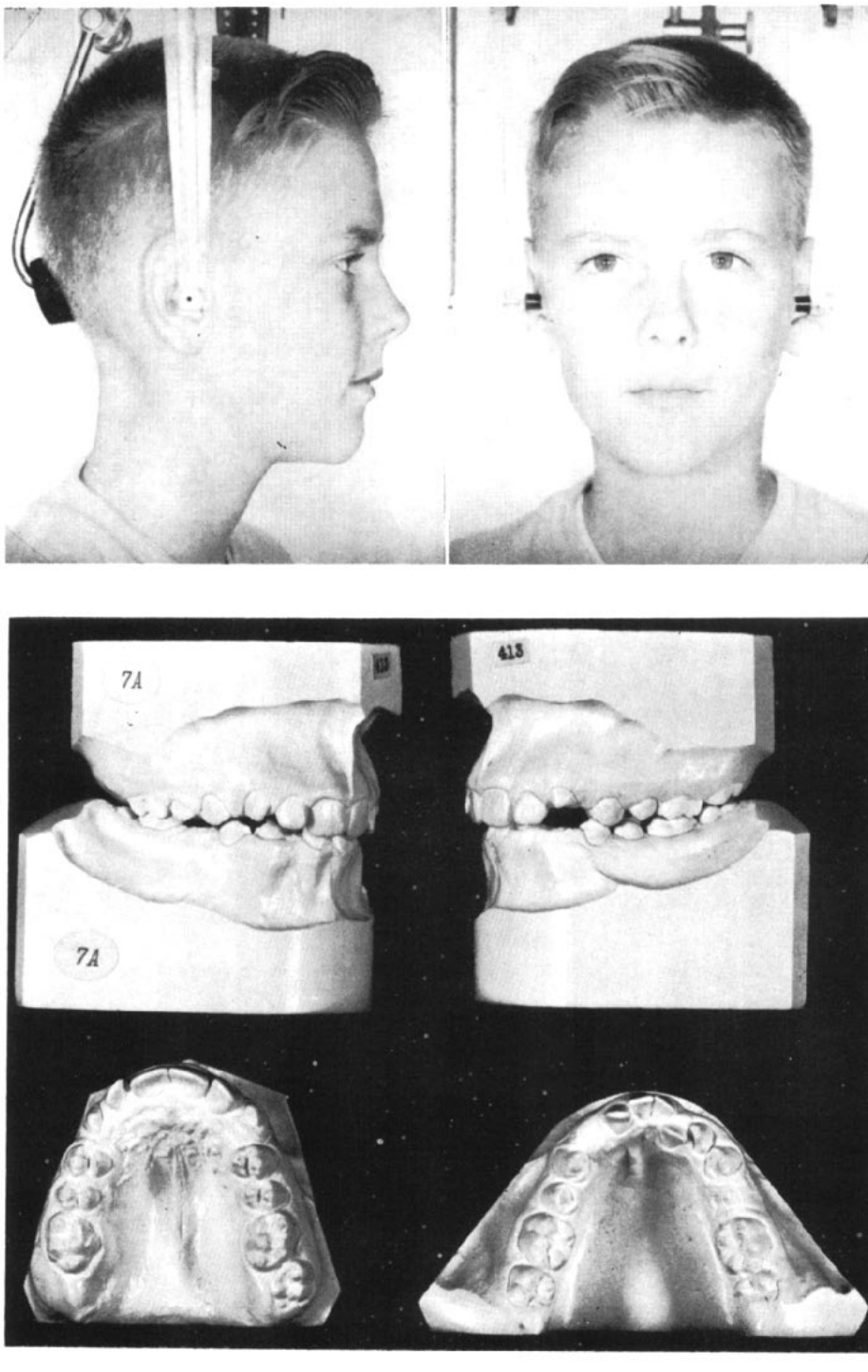
CASE #6
10-24-57
10-21-60



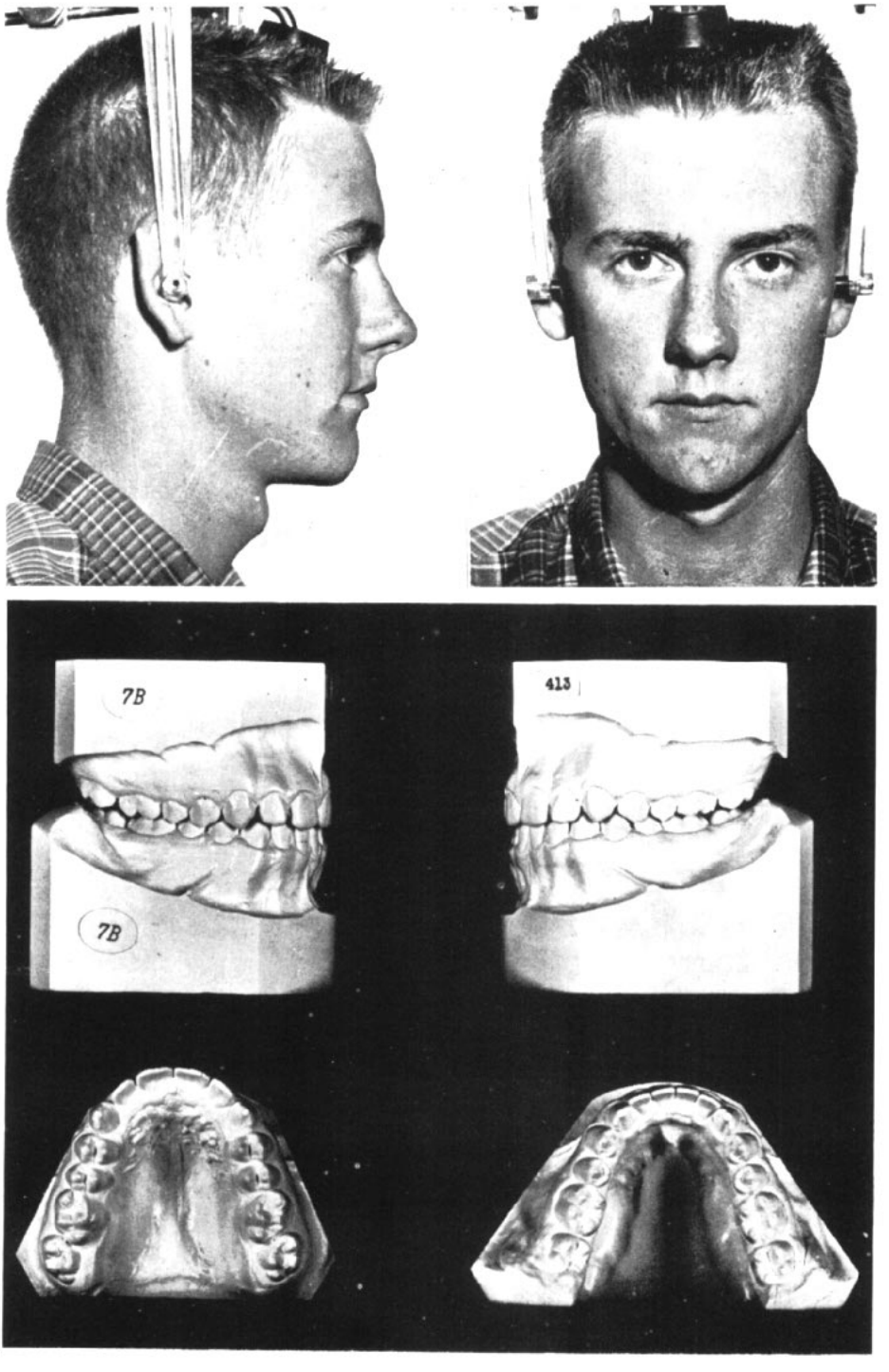


CASE #6
10-24-57
6-8-67

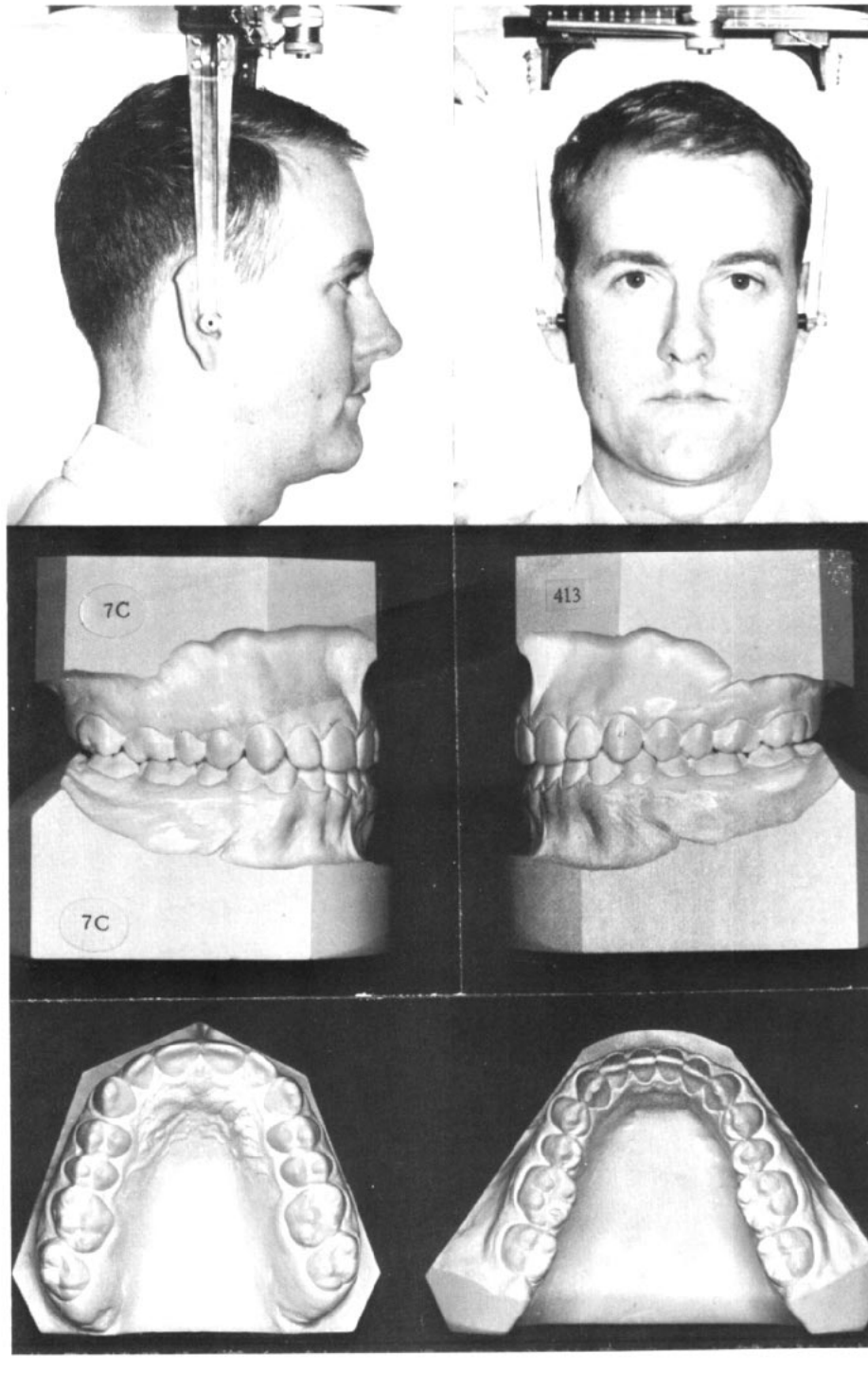
	Case 6		
	10-24-57	10-21-60	6-8-67
SNA	83°	82.5°	83.5°
SNB	80	80.5	83.5
ANB	3	2	0
$\overline{1}$ to NB	17	24.5	19
Po to NB (mm)	4.5	6	6
$\underline{1}$ to $\overline{1}$	128.5°	132°	134.5°
$\overline{F}$acial Angle	81	81.5	84
$\overline{1}$ to Mand. plane	—3.5	—5	—1.5
FMA	32	31	30.5
FMIA	61.5	54	61



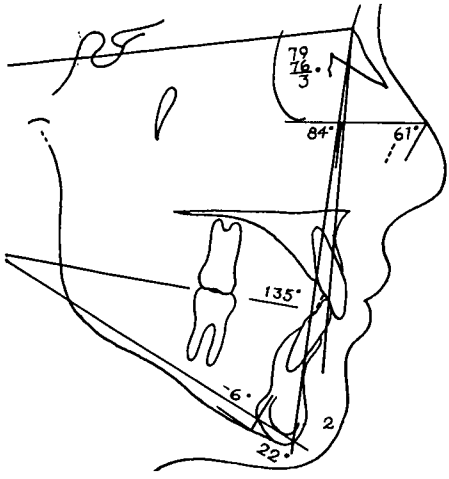
Case 7-A

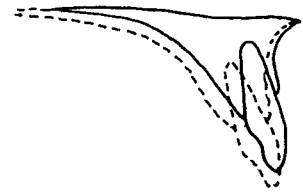


Case 7-B

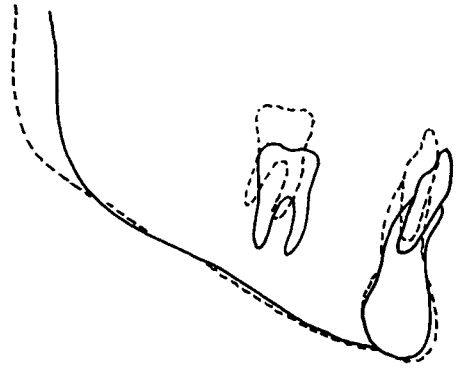


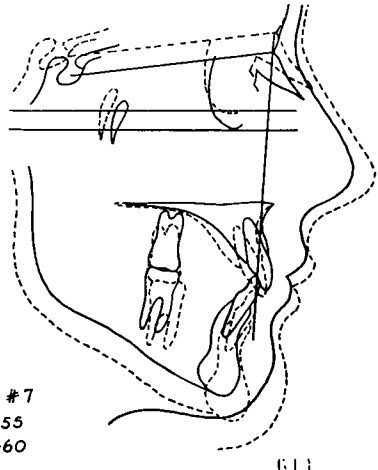
Case 7-C



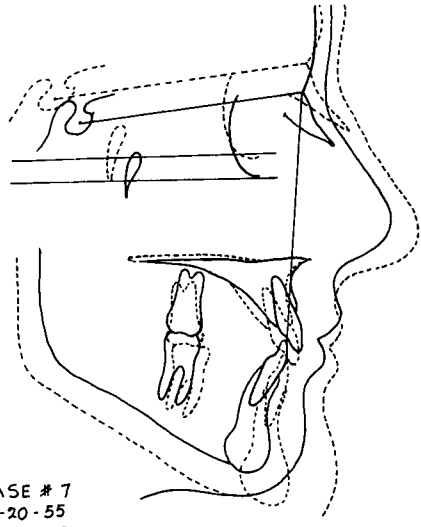


CASE #7
10-20-55
3-29-67



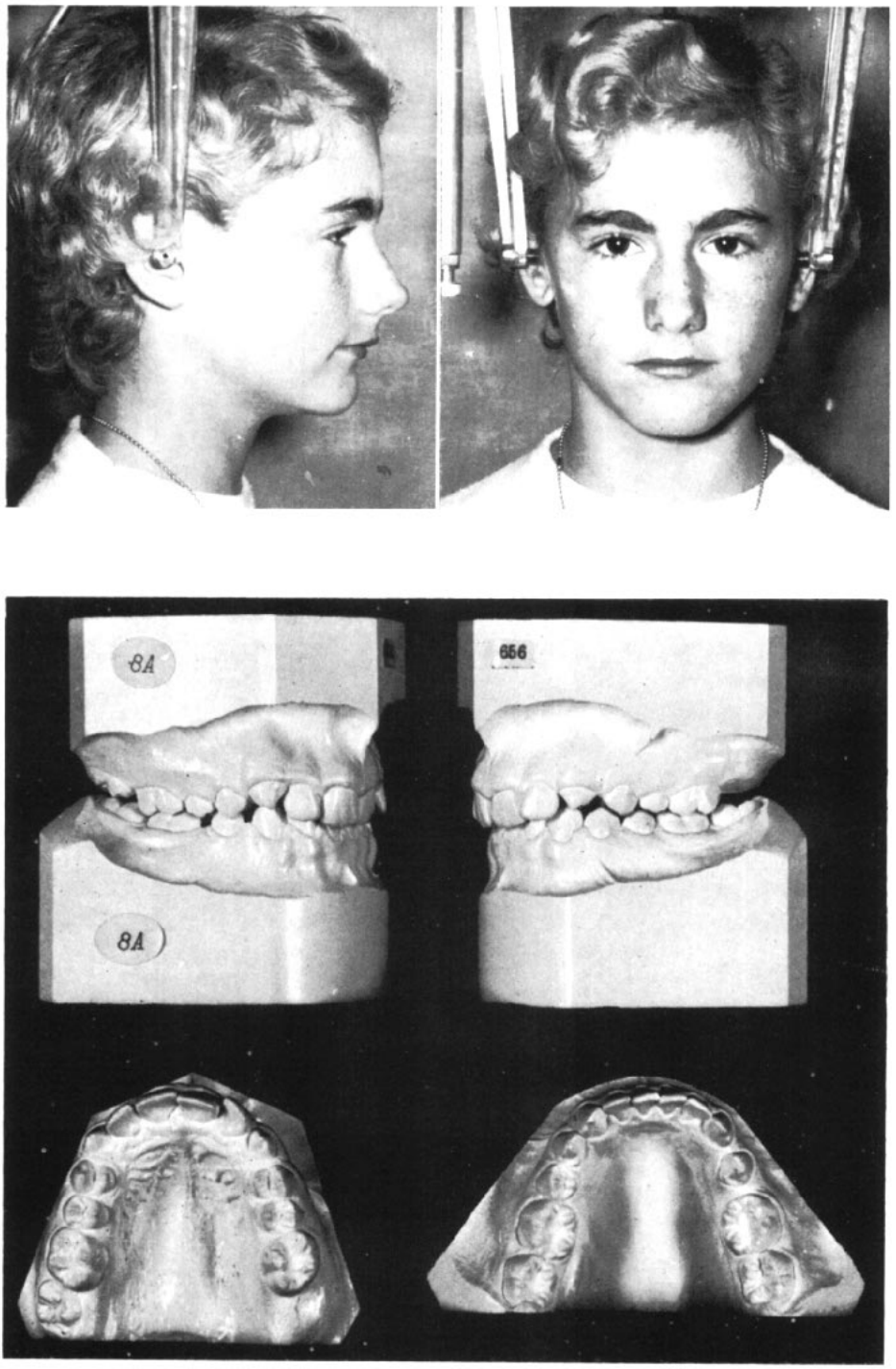


CASE #7
10-20-55
8-24-60

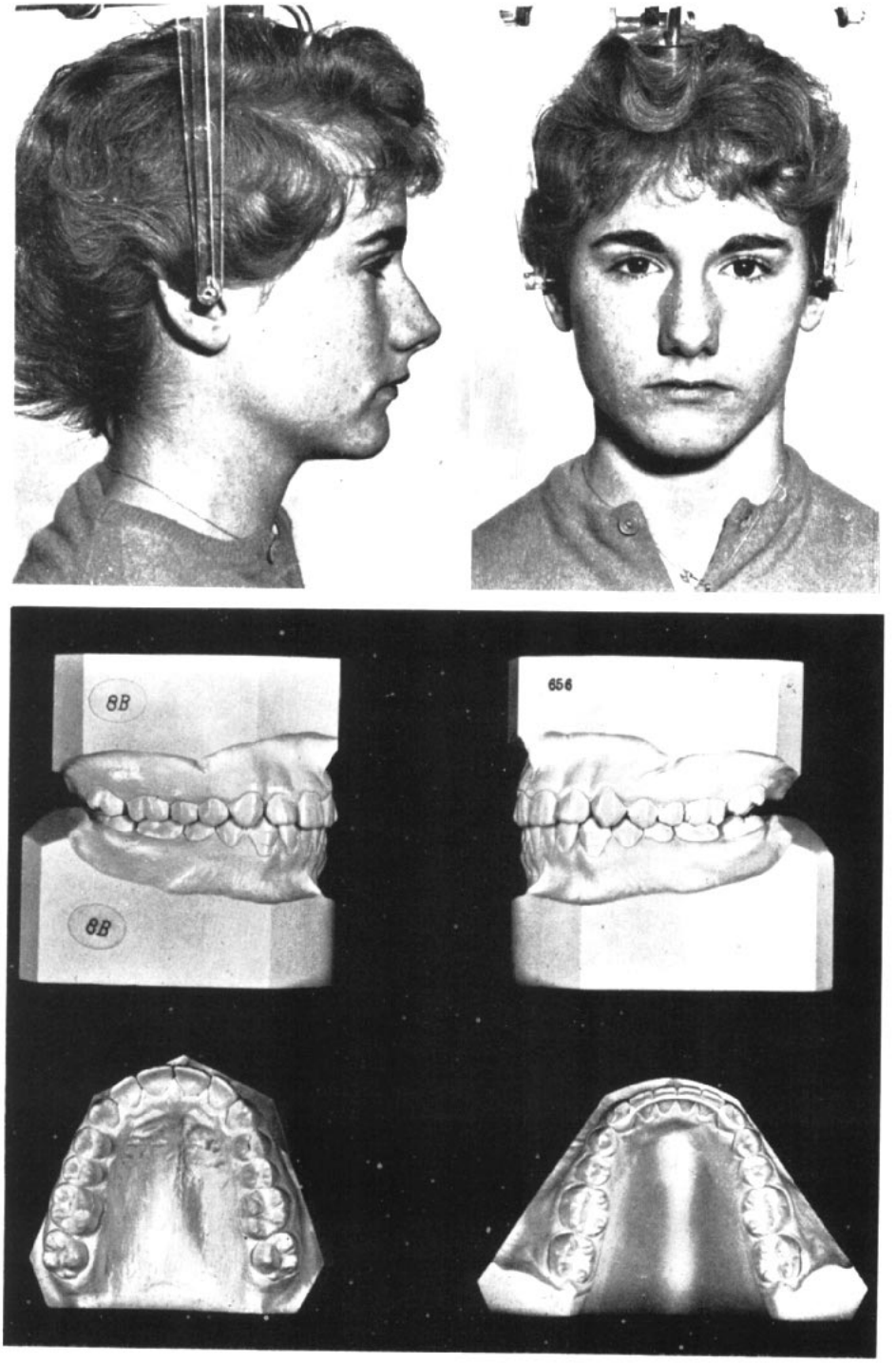


CASE #7
10-20-55
3-29-67

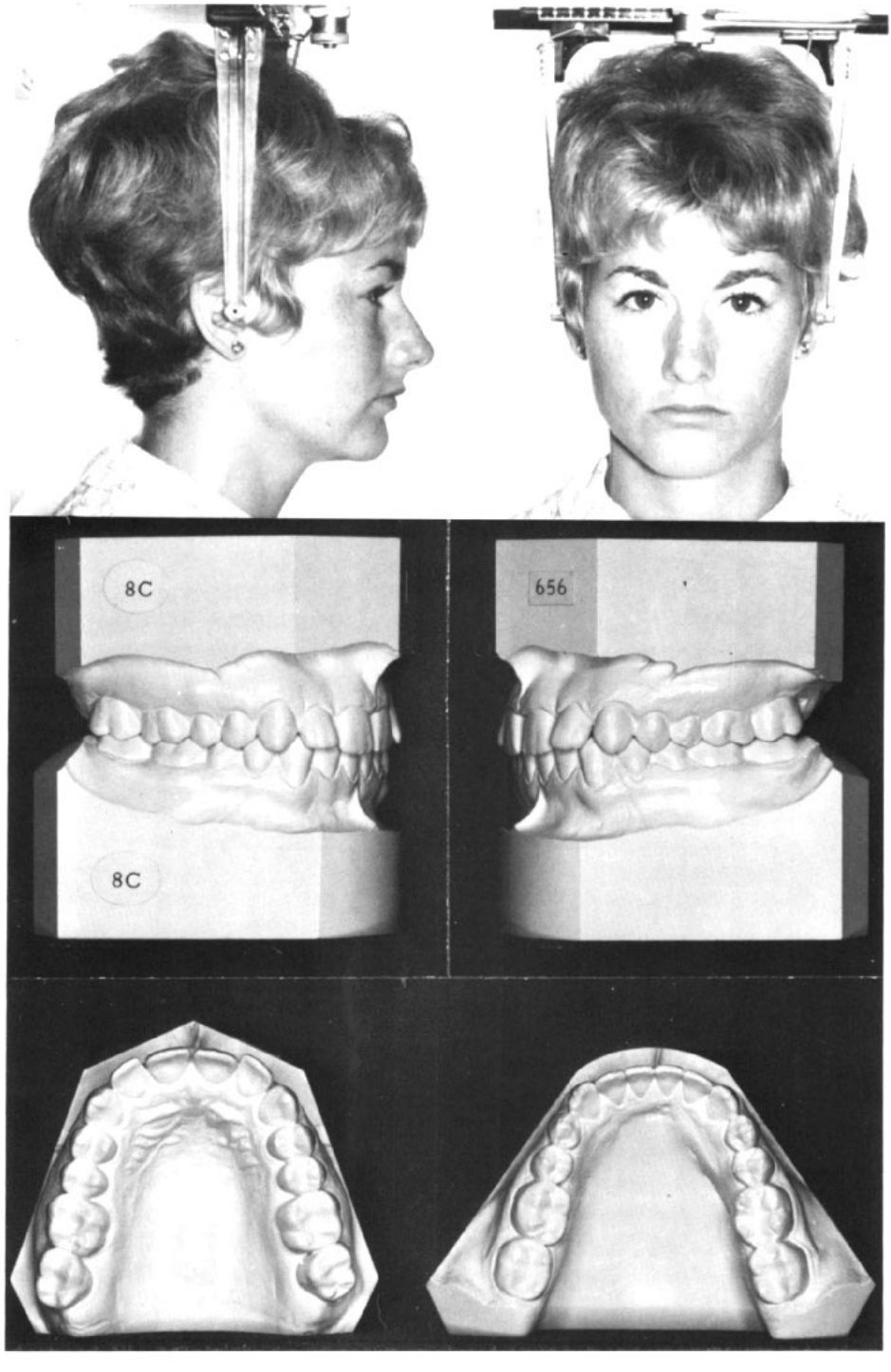
	Case 7		
	10-20-55	8-24-60	3-29-67
SNA	79°	78°	78.5°
SNB	76	77	78
ANB	3	1	0.5
$\overline{1}$ to NB	22	15.5	9.5
Po to NB (mm)	2	5	4
$\underline{1}$ to $\overline{1}$	135°	135.5°	144°
Facial Angle	84	86.5	87
$\overline{1}$ to Mand. plane	—6	—11	—20
FMA	35	33	33
FMIA	61	68	77



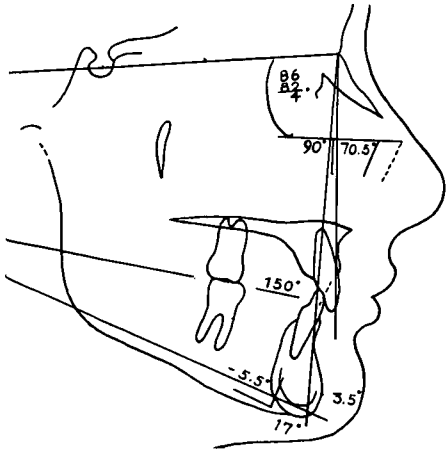
Case 8-A

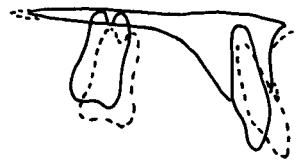


Case 8-B

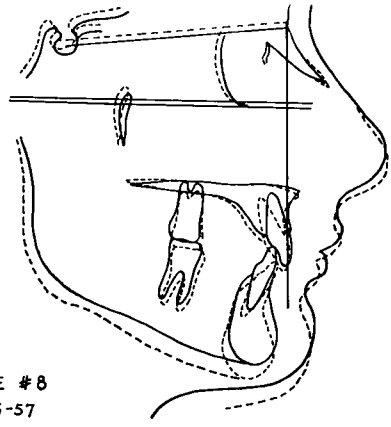


Case 8-C

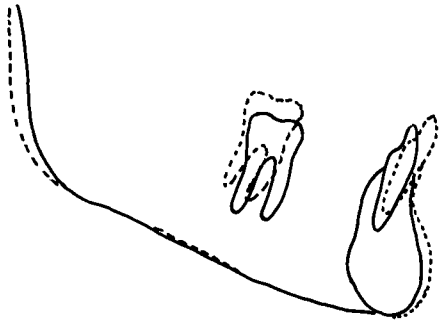


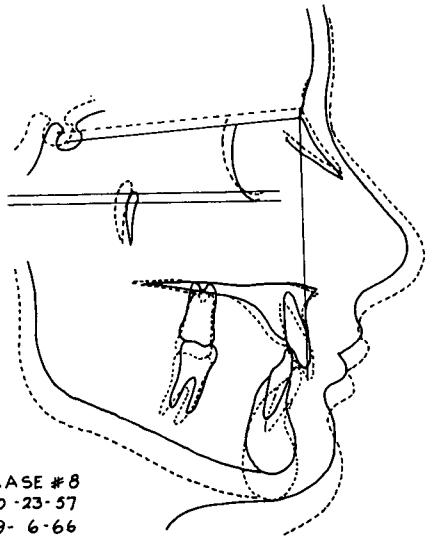


CASE #8
10-23-57
9- 6-66



CASE #8
10-23-57
3-22-60

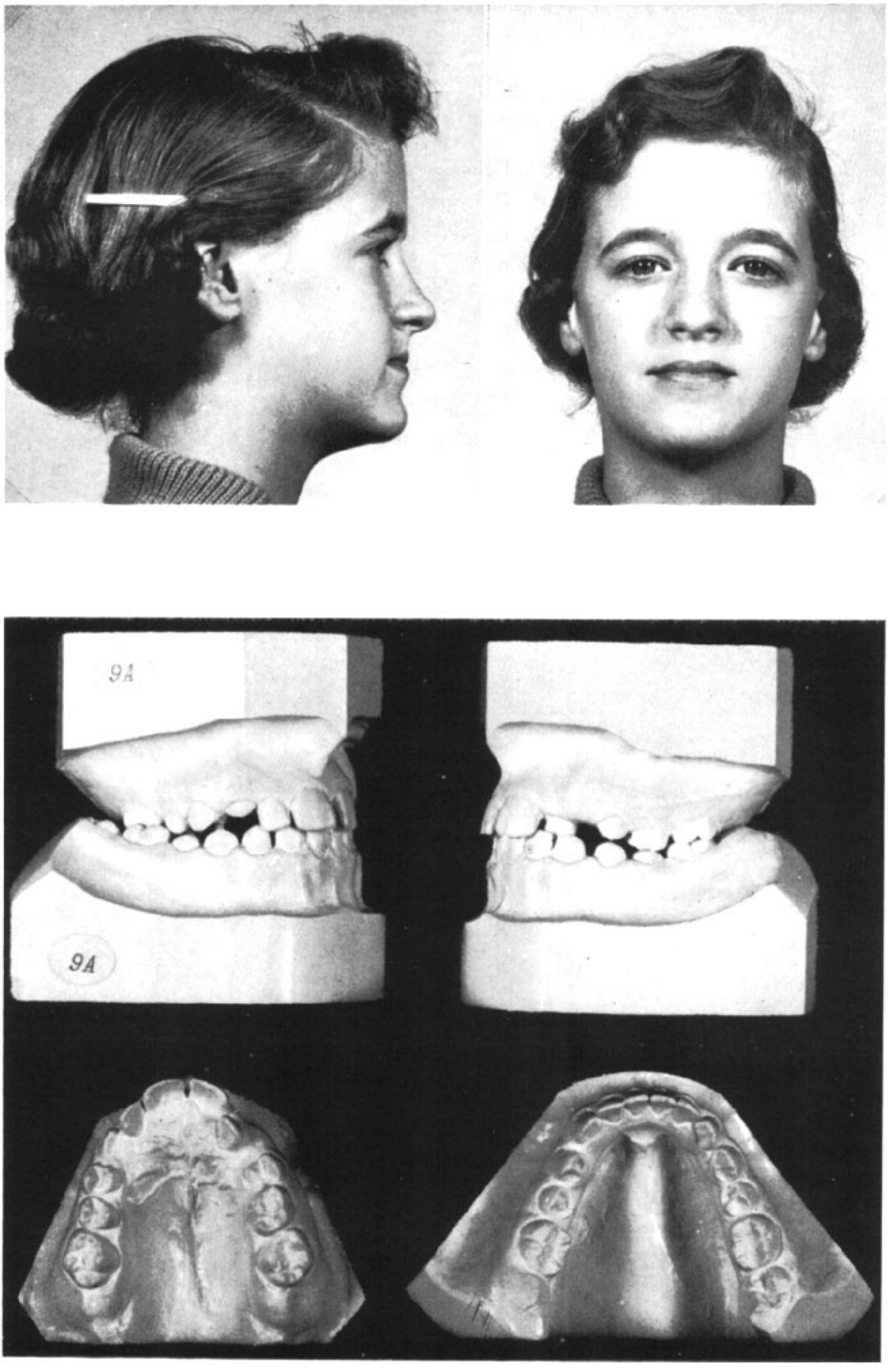




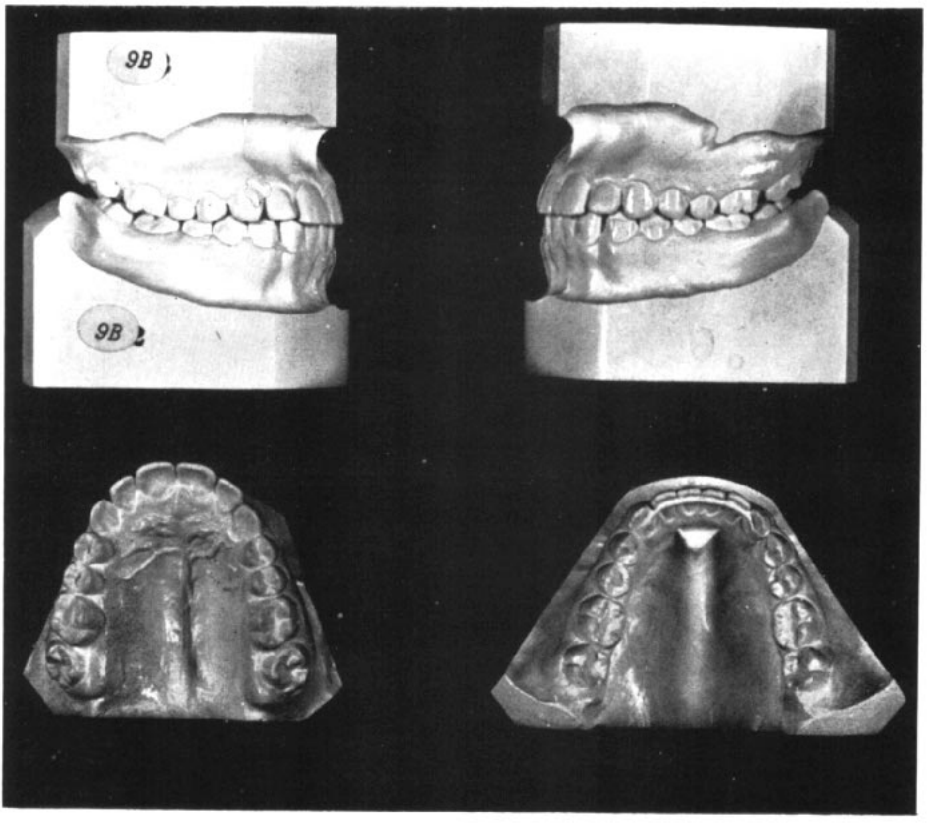
CASE #8
10-23-57
9- 6-66

Case 8

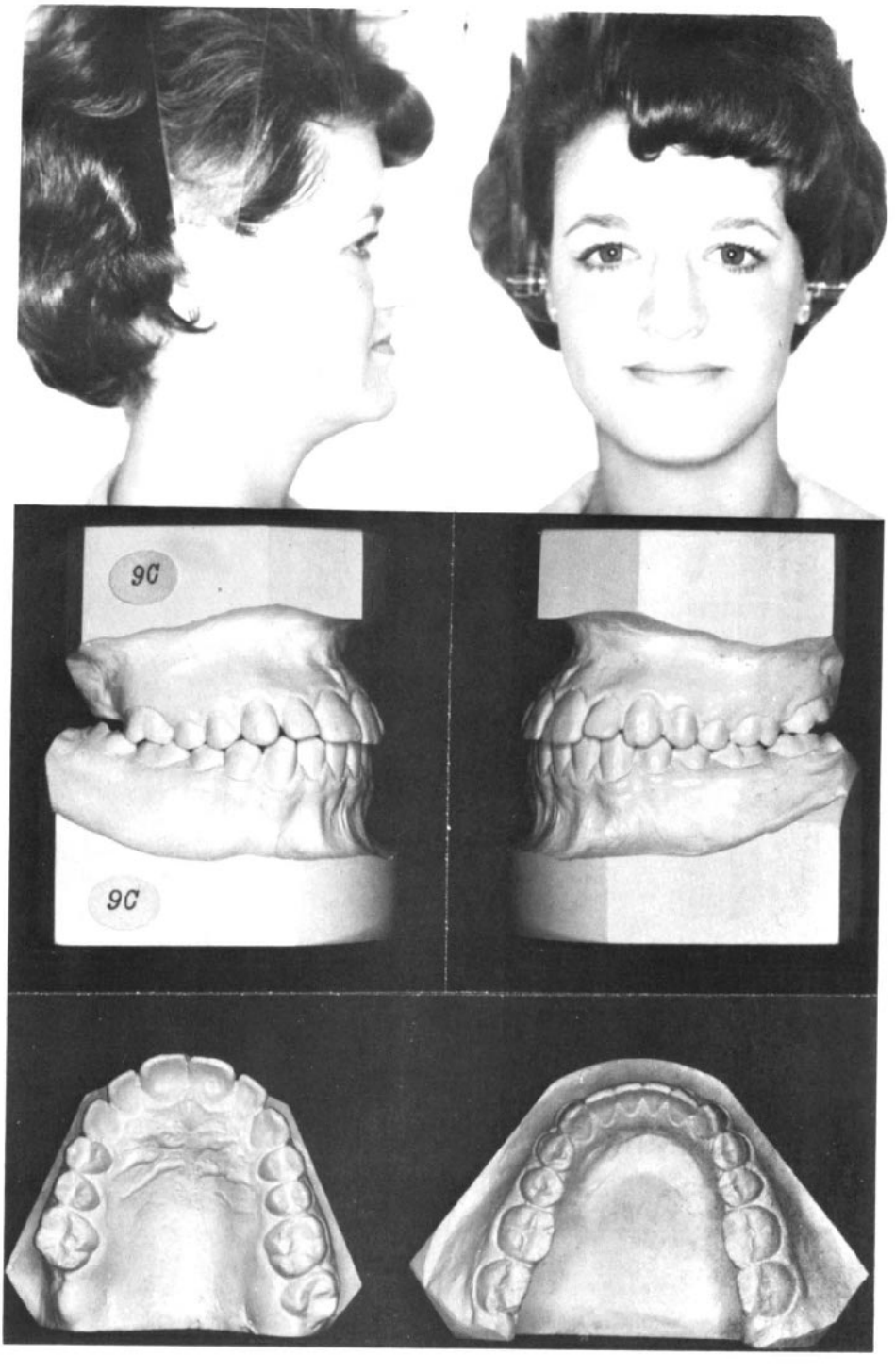
	10-23-57	3-22-60	9-6-66
SNA	86°	85°	85°
SNB	82	81	81.5
ANB	4	4	3.5
$\overline{1}$ to NB	17	28.5	21.5
Po to NB (mm)	3.5	4.5	4.5
$\underline{1}$ to $\overline{1}$	150°	127.5°	134.0°
Facial Angle	90	88.5	89
$\overline{1}$ to Mand. plane	—5.5	6	0
FMA	25	26	25
FMIA	70.5	58	65



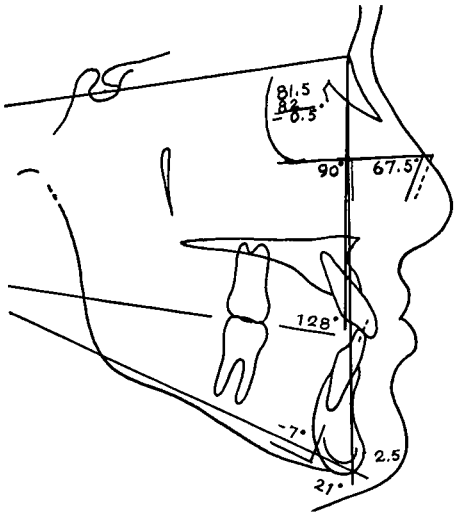
Case 9-A

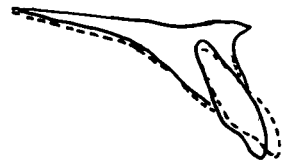


Case 9-B

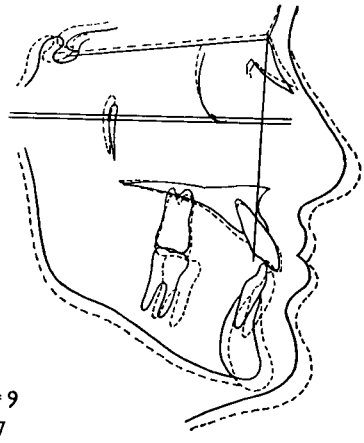


Case 9-C

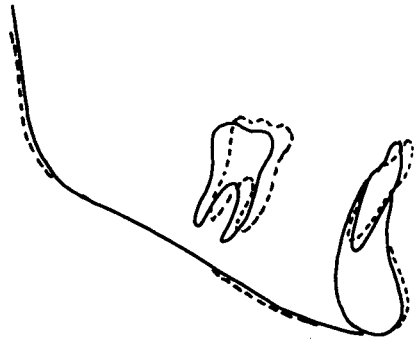


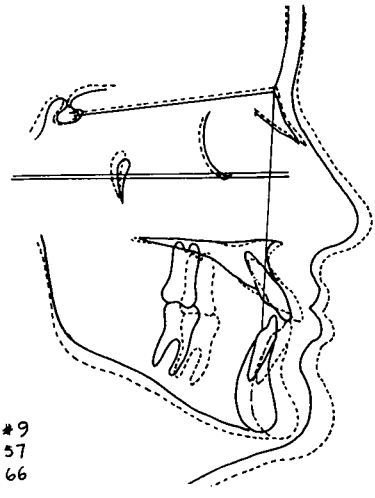


CASE #9
9-25-57
5-14-66



CASE #9
9-25-57
3-18-60





CASE #9
9-25-57
5-14-66

Case 9

	9-25-57	3-18-60	5-14-66
SNA	81.5°	81.5°	82°
SNB	82	83.5	85
ANB	—.5	—2	—3
$\overline{1}$ to NB	21	22	26
Po to NB (mm)	2.5	4	4.5
$\underline{1}$ to $\overline{1}$	128°	126°	116°
Facial Angle	90	92.5	93
$\overline{1}$ to Mand. plane	—7	—4.5	—0.5
FMA	29.5	26	25
FMIA	67.5	68.5	65.5