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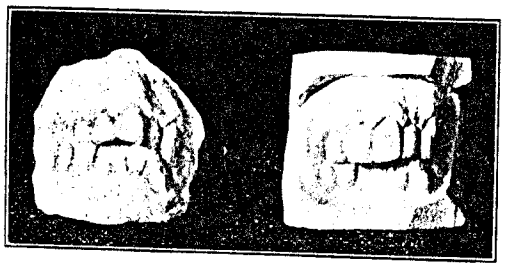
REGULAR CONTRIBUTIONS

THE CORRECTION OF OCCLUSION, ARTICULATION AND FACIAL EXPRESSION BY LENGTHENING THE BITE, BY MEANS OF CROWNS, BRIDGES AND INLAYS

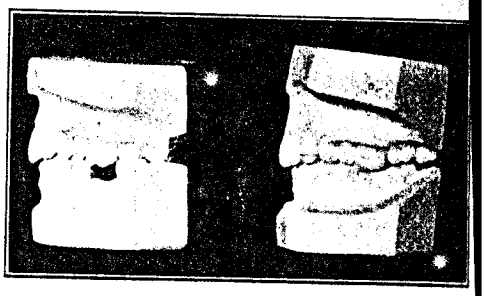
By Weston A. Price, D. D. S., Cleveland, Ohio

THE PURPOSE of this paper is to present a method for restoring to a splendid usefulness and comfort, those cases in which, owing to various causes like extensive extraction or faulty dentition, the masticating efficiency, the facial expression and the ability to articulate distinctly are all or a part seriously disturbed. The abnormal shortening of the face and its attending wrinkles are the chief factors in producing the appearance of age and this, together with the effects of faulty nutrition, makes the sensation of age and lost vigor and conscious deformity, all of which amount to a real calamity in any life. All corrections must be esthetic as well as efficient and as a rule since these conditions are usually found in people in or past middle life it is not generally feasible or wise to try to do extensive restorations by moving the roots, and, in fact, generally not at all necessary.

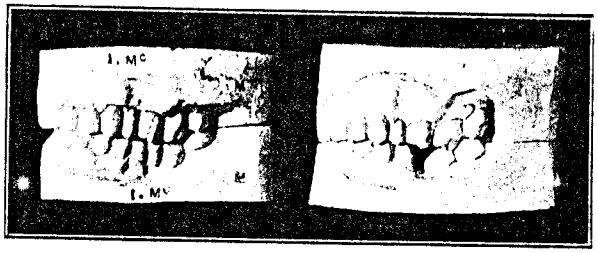
FOOT NOTE.—This illustrated presentation was given before the Ohio State Dental Society in December, '06, and owing to pressure of other duties was not put in shape for publication until this time.



Class I—Fig. 1.



Class III.—Fig. 3.



Class II.—Fig. 2.



Fig. 4*a*.



Fig. 4*b*.

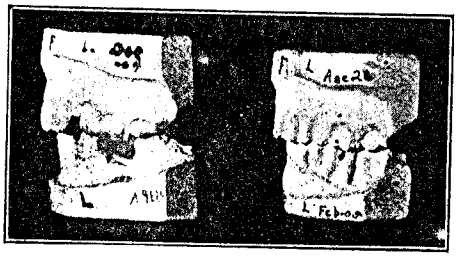


Fig. 4*c*.

To simplify the presentation I have divided the miscellaneous cases that have come to the writer into eight classes and selected just one or two typical cases of each class to represent each class. We will first consider very simple deformities, that do not strictly come under the title.

Class 1 represents those cases where there is a serious deformity in middle life from malposed anterior teeth which should naturally have been regulated in early life but were not. The malposed crowns can be removed and strong porcelain crowns with invisible gold base placed on the same roots in a nearly correct relation with exceedingly little disturbance to the duties or comfort of the patient and with very great advantage to the appearance. Fig. 1 is typical, being protruded central incisors. This woman's aged mother wept for gratitude when her daughter came home with this simple correction of a glaring blemish on an otherwise beautiful face.

Class 2 includes those cases where the discomfort produced from a simple cause may be an alarming irritant to the health, for so simple a matter as food packing into a trap between the teeth or particularly where the first molar has been extracted and the second has tipped forward producing a trap. Its tipping also destroys its antagosization with its opposing teeth. Fig. 2, *a* and *b*, show such a case before and after restoring with a simple bridge and inlay attachments. Both lingual and buccal views are shown. This restores the occlusion also of the tilted molar and removes an irritant which seriously interfered with the patient's health.

Class 3 includes those cases where the bite becomes locked by a tooth from one arch extending into a space into the other, thus preventing any but an up and down motion and may very seriously interfere with mastication. Fig. 3 shows a case with such a history and the condition corrected with a bridge in the space carried by inlays.

Class 4 includes those cases with a seriously reduced masticating surface due primarily to a lack of dentition. The bite is usually much shortened and locked so that there is no rotating or gliding motion possible. Fig. 4*a*, 4*b* and 4*c* are the case of a young man twenty-five years of age and poorly nourished. The bicuspids are nearly all missing, the right upper cuspid is situated against the first molar. The bite was lengthened three-sixteenths of an inch and a complete normal masticating surface provided by bridges attached with iridio platinum pins into the live teeth in some cases, and in devitalized teeth and with inlays where there were cavities that could be used. The upper cuspids were made into bicuspids by putting an extra cusp on their lingual surface. No gold is visible and the occlusion looks normal. The improved masticating equipment produced the remarkable result that according to his statement he gained twenty-five pounds in three months. This work was completed February 27th, 1905, and is examined once or twice a year, and to this time is apparently in as perfect a condition as when completed. In this case the left lateral was moved slightly, otherwise the teeth were left in their fixed position.

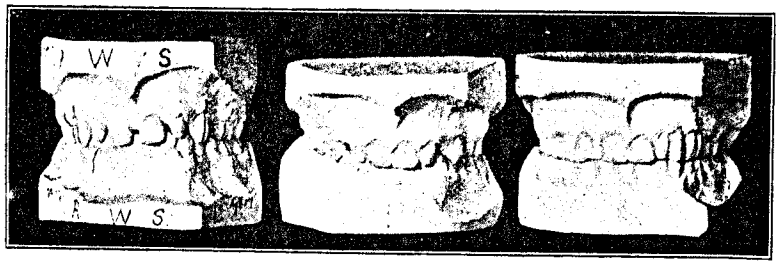


Fig. 5a.

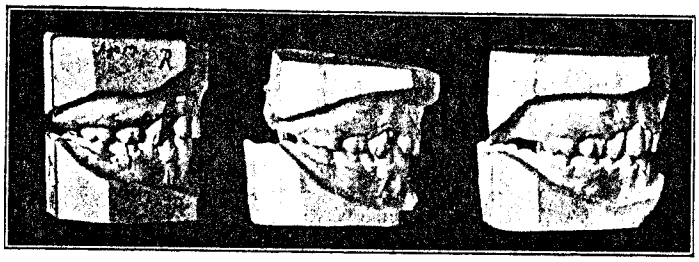


Fig. 5b.

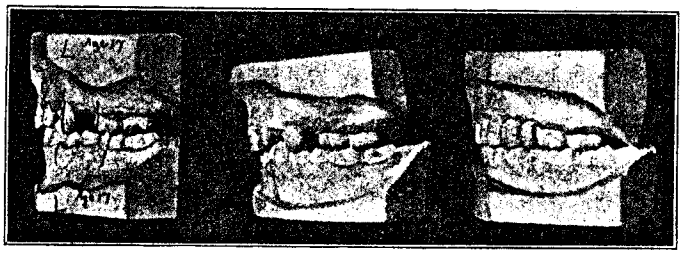


Fig. 5c.

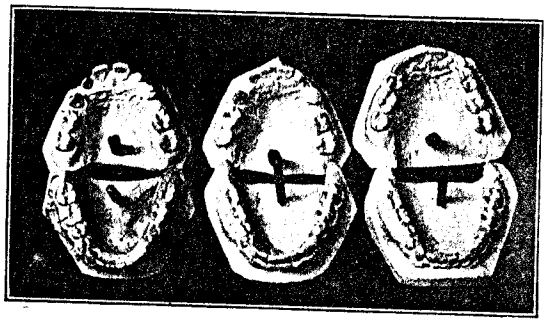


Fig. 5d.

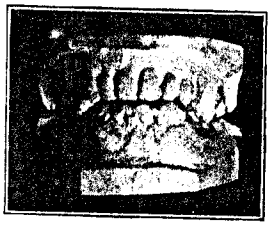


Fig. 6.

Figs. 5*a*, 5*b*, 5*c* and 5*d* are a more complicated case and of the same classification. The upper bicuspids have not erupted and the cuspids and incisors have moved back. The bite was abnormally short producing in even so young a man, namely seventeen, a compressed appearance to the lips. The cuspids were made into bicuspids by putting a lingual cusp on them of gold as part of the system for lengthening the bite, and artificial cuspids carried into the spaces obtained by having the four incisors placed in proper relation which was done by an orthodontist.. Gold tips were placed on the occlusal surface of the molars to lengthen them and bicuspids were carried on these and the cuspid restorations. Small threaded iridio platinum pins go into holes in the lingual surface of the cuspids mesially and distally to the pulp and they are not sensitive and are strong and the whole restoration aesthetic, there being no sign of anything artificial from an external observation. This case was completed May 2d, 1905, and continues giving excellent service as well as a very great improvement in the general appearance and facial expression and ability to masticate.

Class 5 includes those cases where the bite is much shortened and the masticating surface very greatly reduced from loss of teeth by extraction producing much deformity of the mouth and lips and premature appearance of ageing.

Figs. 6 and 7 are cases that are typical of a large number that present presumably in every busy practice. Owing to early extraction of all the lower molars and sometimes one or both bicuspids, the remaining anterior teeth are abraded down almost to the gum line by the abnormal load of an unnatural mastication. The facial expression is extremely distorted and the efficiency of the masticating apparatus very poor, indeed. The method of restoration in these two cases was by placing crowns on the abraded anterior lower teeth and restoring the posterior lower teeth by means of a removable saddle on each side with attachments to the back of the crowns and a round bar passing around under the tip of the tongue connecting the two sides. This is really only a modified lower plate. Usually a couple, at least, of the crowns next to the attachment on each side are united for rigidity. The restoration of Fig. 6 was made in December, 1906, and Fig. 7 in November, 1903, and when last seen both were giving good service and very great improvement in appearance and efficiency.

Figs. 8*a*, 8*b*, 8*c* and 8*d* are also typical and represent a case of a lady about fifty-five, who recognized with great sorrow the premature marks of time due to shortening of the face as well as the wrecked appearance of most all of the incisal angles, for the upper incisors were abraded from the under side so that restorations of gold soon became dislodged. The bite was lengthened with bridges, tip and porcelain crowns and the incisors restored with compound porcelain pieces that included the mesial lingual and distal surfaces. The improved masticating surfaces made a great improvement in her nourishment, and this, together with the greatly improved aesthetic appearance and corrected facial expression, made her insist that

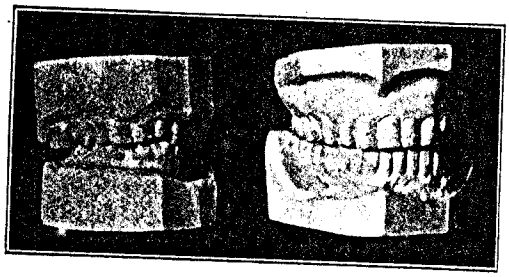


Fig. 7.

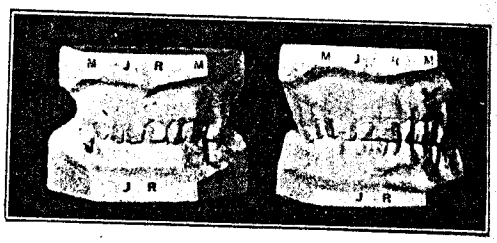


Fig. 8*a*.

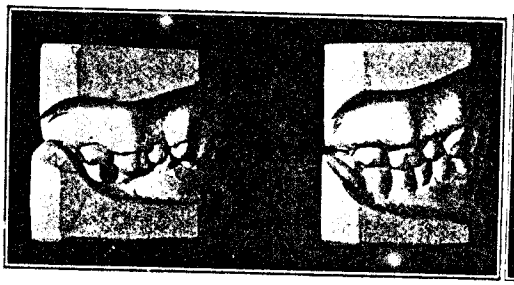


Fig. 8*b*.

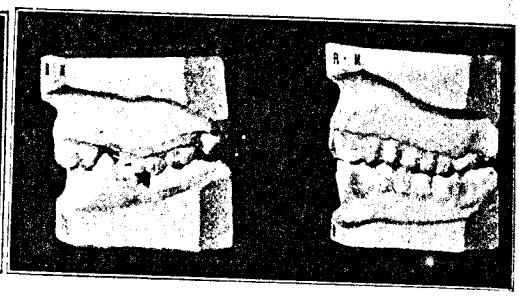


Fig. 8*c*.

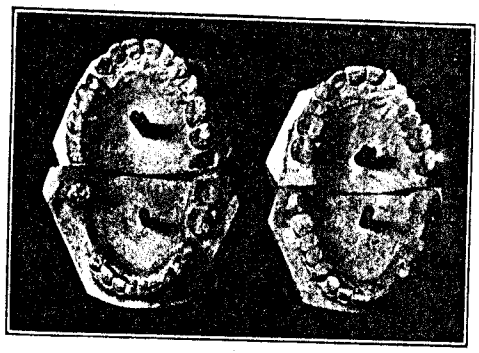


Fig. 8*d*.

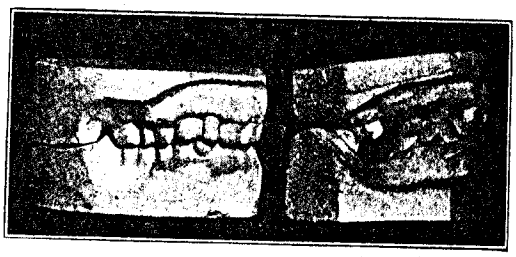


Fig. 9*a*.



Fig. 9*b*.

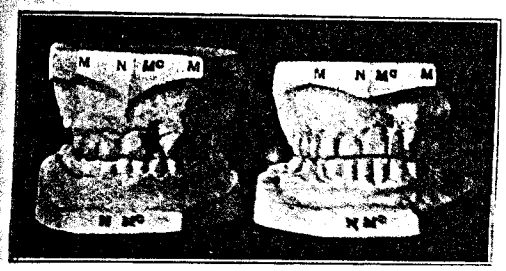


Fig. 10*a*.

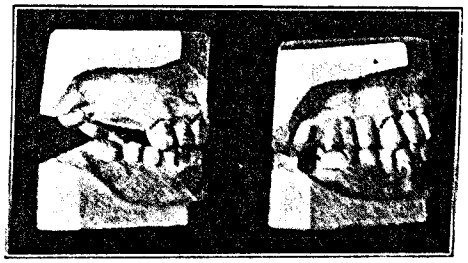


Fig. 10*b*.

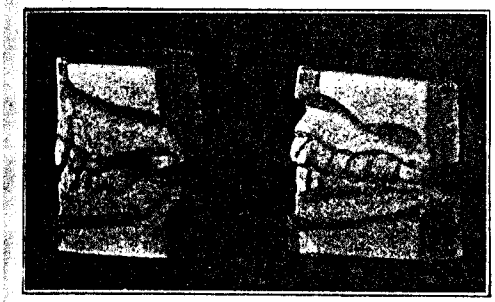


Fig. 10*c*.

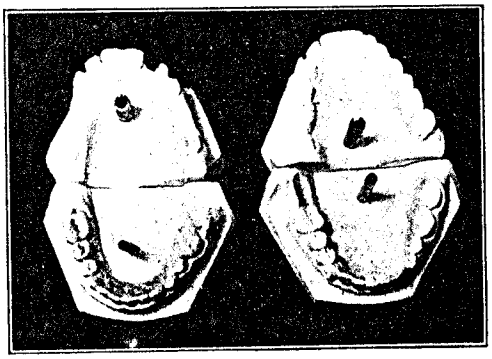


Fig. 10*d*.

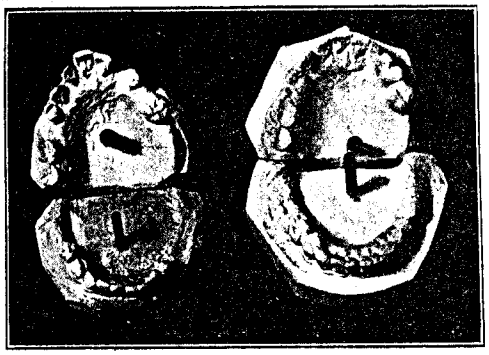


Fig. 11*a*.

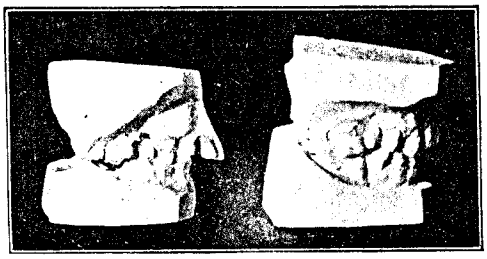


Fig. 11*b*.

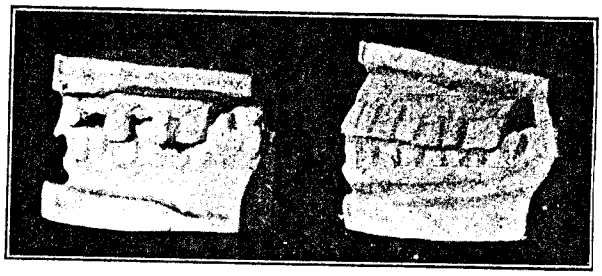


Fig. 12.

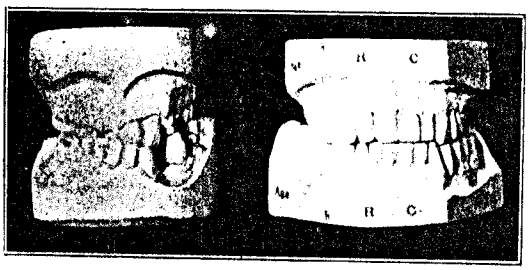


Fig. 13*a*.

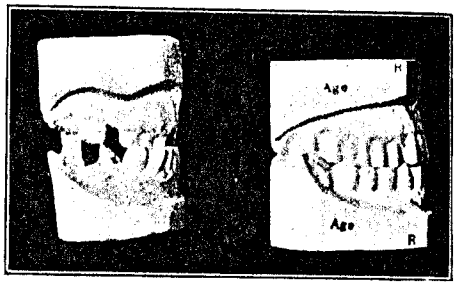


Fig. 13*b*.

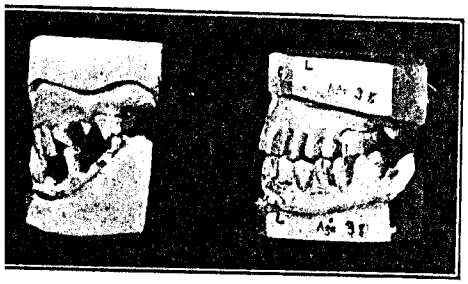


Fig. 13*c*.

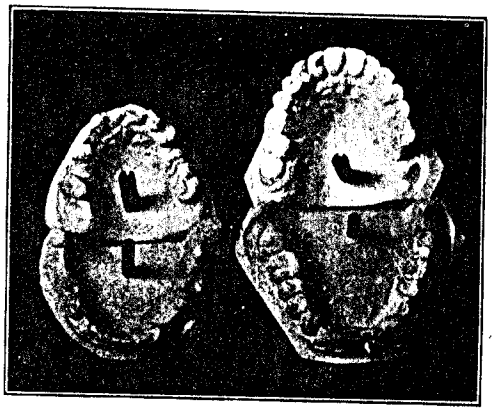


Fig. 13*d*.

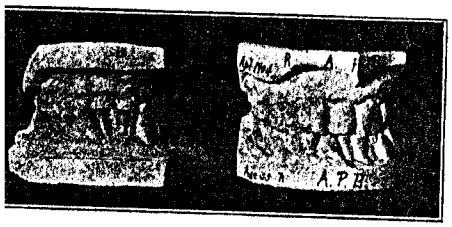


Fig. 14*a*.

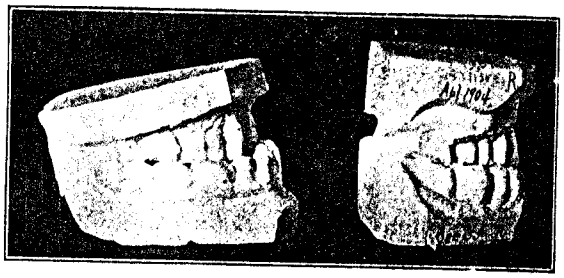


Fig. 14*b*.

she looked fully fifteen years younger, which her ambitions easily verified. The change was very marked and her health and appearance very greatly improved.

Figs. 9*a* and 9*b* show an extreme case where there were almost no true occluding surfaces in the mouth due to the extractions in one jaw destroying the usefulness of the teeth of the other. The upper right cuspid is malposed entirely, being inside the arch and the lingual cusp of the second bicuspid, which was about the only true occlusion, is split off. A splendid restoration was made by using the foundations as shown prepared in Fig. 9*b*, the middle model, and placing the restored teeth in their proper positions although the foundations were out of line, particularly the intruded cuspid, which as shown was cut off and restored. The bite was opened three-sixteenths of an inch making a marked general improvement in the facial expression, and a splendid occlusion. Fig. 10 shows a case of extensive restoration with bridges for lengthening the bite. Fig. 11 is typical of a variety of this class of cases where an extensive protrusion of the upper incisors is being produced by the lowers by the abnormally close or shortened bite. Fig. 11*b* shows these same teeth three months later, for they have, by the stress of the lip only, dropped to nearly normal position again. There are many such cases developing in all our practices that should have preventive treatment and thus prevent the necessity of later corrective treatment.

Fig. 12 is typical of excessive abrasion due to lack of support. In this case as shown the upper molar has cut down part of the lower molar and bicuspid almost to the gum line. The bite was lengthened about four-sixteenths of an inch with inlays and bridges and the restoration of the facial expression, as well as the masticating efficiency, was very gratifying. This case was completed in May, 1906, and at the time of this publication is still giving as good service as when inserted. Almost six months after the completion of this restoration this lady, about sixty-five years of age, came to the office and said she feared she had never properly expressed her gratitude and presented the writer with a huge bouquet of American Beauties.

Class 6 represents that class of cases where the shortened bite and broken and abraded anterior upper teeth has permitted the lower teeth to extend beyond the uppers. Figs. 13*a*, 13*b*, 13*c* and 13*d* illustrate such a case before and after. The restorations were made with porcelain crowns and bridges and nothing but porcelain in view. The crowns were inclined outward to about their normal position, and the general improvement was exceedingly great as can be judged. This patient is seen frequently and since the above was done in April, 1905, has had practically nothing to be done except examination and cleaning, which latter he keeps very well done himself. This patient was only twenty-eight years of age and had let his teeth go to this extreme condition through sheer fear of dentists. It was possible to do even so extensive a restoration without causing any serious discomfort. Note particularly the difference in the width of the arch before

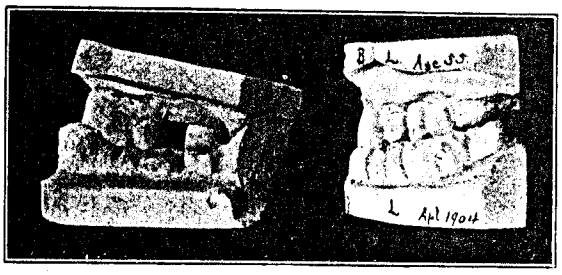


Fig. 14c.

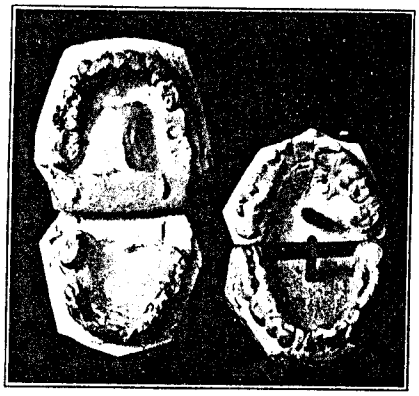


Fig. 14d.



Fig. 15a.

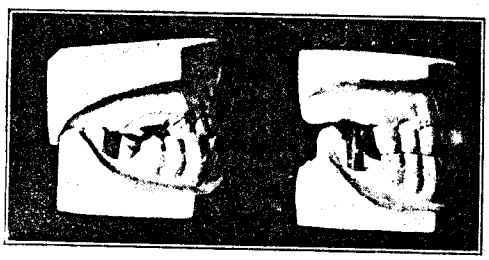


Fig. 15b.

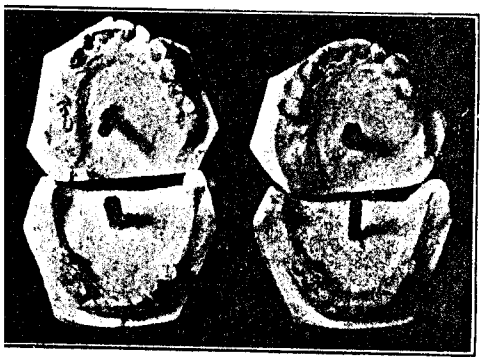


Fig. 15c.



Fig. 16b.



Fig. 16a.

and after, though no roots were moved at all in their sockets, only the placing of the crowns in their new position.

Figs. 14*a*. 14*b*, 14*c* and 14*d* are of the same class but a more extreme case and with a serious resulting complication. The patient, then aged fifty-five, a busy business man, was brought by a physician for an X-Ray picture of the maxillary articulation to find a suspected cancer, for the patient had had such pain for months that he could not masticate and for three months had not been able to sleep more than two hours out of twenty-four, and seriously feared he would do himself bodily harm in his extremity. Temporary extensions were made to raise the bite and that night the patient slept much more than any time for months, and the neuralgia paroxysms became much less frequent. The permanent restoration was made as shown with tips and crowns, correcting the relations about the articulation and the distressing irritation rapidly and entirely disappeared, and now for over five years he has had no recurrence.

Class 7 represents those cases where the bite has become crossed by faulty eruption of some of the teeth, usually one of the upper cuspids developing in occlusion inside the lower teeth. Fig. 15 shows such a case restored, not by moving the roots, but by placing new porcelain crowns on the roots in the corrected relation and produces a very greatly improved condition, both for mastication and aesthetically.

Fig. 16 shows a more aggravated case corrected in the same way. This was done in April, 1896, 13 years ago, and is still in excellent condition.

Class 8 represents those cases where there is an abnormal development of one of the jaws in adult life due to acromegaly or giantism.

Fig. 17*a* shows this gentleman at thirty-two years of age, before the disease commenced, when he happened to have a plaster cast made of his face. Fig. 17*b* shows the change when he came to the writer twelve years later when the lower arch had developed so that it was about one-quarter of an inch outside of the upper, all the way round, making occlusion absolutely impossible. There were almost no cavities and the teeth were almost all in place in both arches. A splint was made to fit over the upper natural teeth which extended outward and downward all the way around and carried a set of large artificial teeth in occlusion with the malposed lowers. This also carried his upper lip out to place and greatly improved his appearance as shown in Fig. 17*c* as well as making mastication possible. The condition of continuing enlargement involved other parts of the body,—for example, his bare feet were fourteen inches long and his first and second fingers four inches in circumference and the others in proportion. His wrists and ankles were almost normal size and his tongue almost completely filled the enlarged oral cavity. The writer made frequent measurements of the developments and the head enlargements were most out of normal proportion. Every few years the dental splint had to be made over to extend out to the new relation until the lower was fully three-quarters of an inch outside the uppers all the way round as shown in Fig. 17*c*.



Fig. 17*a*.



Fig. 17*b*.



Fig. 17*c*.

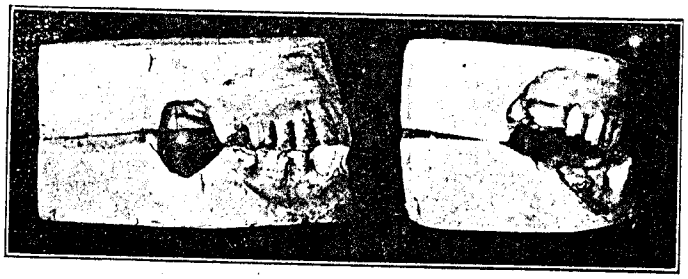


Fig. 17*d*.

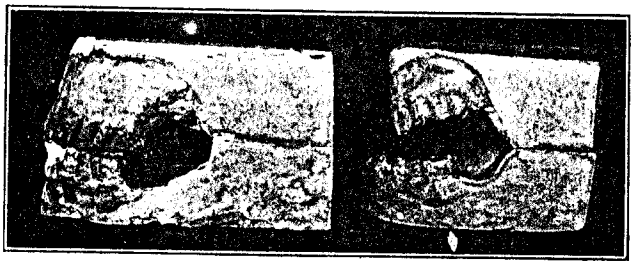


Fig. 17*e*.

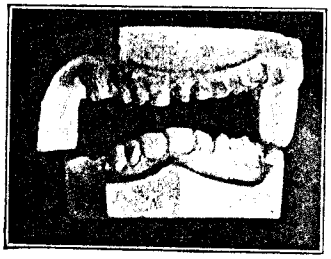


Fig. 17*f*.



Fig. 17*g*.

Figs. 17*c* and 17*d* show the restoration as described. This is the only authentic case the writer has ever seen of an upper jaw with two complete sets of teeth. It is remarkable that there was no decay of the upper natural teeth under the splint.

Since presenting these cases in Columbus in December, 1906, this patient has died from a heart lesion caused by the extreme pressure of the enlarged tissues in the Thoracic cavity.

The above does not include any cases not completed prior to December, 1906. The recent cases will be reported later.

The great importance of this class of restorations is becoming more and more apparent continually, as also the certainty of these operations being practical and having continued efficiency.

Some prime factors in this work which experience has shown, are, to use porcelain crowns with gold bases and to use with confidence gold inlays for bridge supports, if they are very carefully mortised into the tooth structure instead of and in preference to gold crowns. Also, iridio platinum posts can, with perfect safety, be used in live teeth if properly placed, and carry heavy burdens for a long time if properly protected and accurately fitted before cementing.

No class of professional service in the writer's hands has given so great satisfaction to both the patients and himself as the above.