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RESTORATIONS OF INTEREST TO THE PERIODONTIST

By C. Thurston Ferebee, B.S., D.D.S.

IN THE application of fixed bridgework to certain cases having periodontoclasia as a superinduced factor, and the application of splints thereto, there arises the problem of how to gain the maximum efficiency in one's appliance without violating the principles of conservatism.

Partial or complete immobilization of certain teeth is an accepted procedure, in order to induce physiological rest, and, thereby, to hasten the repair of the periodontal structure, and to prevent the loss of teeth. These are usually caries-free and sound.

The perplexing thing, and, at the same time, a time consuming procedure in preparing teeth to receive suitable attachments, under the conventional system of placing three-quarter crowns or pinledge attachments, with complete removal of the lingual aspects of these teeth, engenders questions in the minds of some more conservative operators.

Reflecting, we understand that several present day appliances and restorations were designed to meet the physical properties of gold alloys of another day in dentistry. Recall the Carmichael and early three-quarter crowns, that failed because the alloy was too soft to resist the masticatory stress imposed, with consequent spreading of the crown, and opening of the labio-gingival margins, which invited the process of decay. In these cases greater bulk was used to compensate for lack of strength.

With the recent work of investigators in gold alloys and the researches of R. L. Coleman, at the National Bureau of Standards, we have been able to formulate and set tentative specifications for dental gold alloys, which may be used to meet any torque and shearing stress developed by the muscles of mastication.

When properly applied, these alloys fulfill a long desired need. With the production of tougher and harder alloys, we are able to supply missing dental structure which receives heavy stresses without expectation of such failures as the springing of the three-quarter crowns, wearing of points of contact, et cetera. We are able to use thinner restorations, demanding little removal of tooth structure.

With these ideas in mind, your colleague has constructed appliances which subserve the same purposes of fixation, but, which rely upon the superior qualities of the restorative agent to eliminate unnecessary sacrifice of tooth structure.

In this brief space allowed, we shall try to give the steps in preparation and construction, mentioning the advantages and disadvantages, the indications and contraindications for our revised crowns.

Step One

A sound superior incisor is dressed on the mesial and distal surfaces with a safe sided carborundum disk, so that the surfaces converge toward the lingual, following the slope of the original contour in the gingivo-incisal direction. The cut is made so as not to involve the mesio— or disto—lingual line angles.

Step Two

The incisal edge or surface is reduced to approximately one half millimeter at the expense of the linguo-incisal line angle, extending for the entire length of that surface, therefore including the mesio-linguo-incisal and disto-linguo-incisal point angles. At this time, if it is necessary for purposes of correlating the occlusion for this segment of the arch in which the tooth is located, we may remove sufficient dental structure, including the labial enamel, yet producing a decided slope of the incisal surface toward the lingual.

Step Three

Step three of this procedure is completed successfully in the mouth by the use of an inverted cone stone or a tapering stone point in a contra-angle handpiece. The stone is used to remove the linguo-gingival band of enamel remaining below the cingulum. This produces confluences of the mesial, lingual, and distal surfaces of the preparation, the line angles of which have been rounded to conform to the curvature of the lingual surface as it joins the cervical portion of the root.

Step Four

Step four, the insertion of grooves on the mesial and distal aspects, beginning at the mesio—and disto-linguo-incisal point angles, directed cervically and parallel to the labio-incisal two-thirds of the labial enamel plate, and terminating at, or about, the cervical line. The termination is placed at this point because it may be found in these cases that some type of gingival recession is present.

Step Five

Step five constitutes the removal of the undercut produced, since the slice was removed from the approximal surfaces with a flare having its greatest divergent points at the incisal. This is removed with the aid of

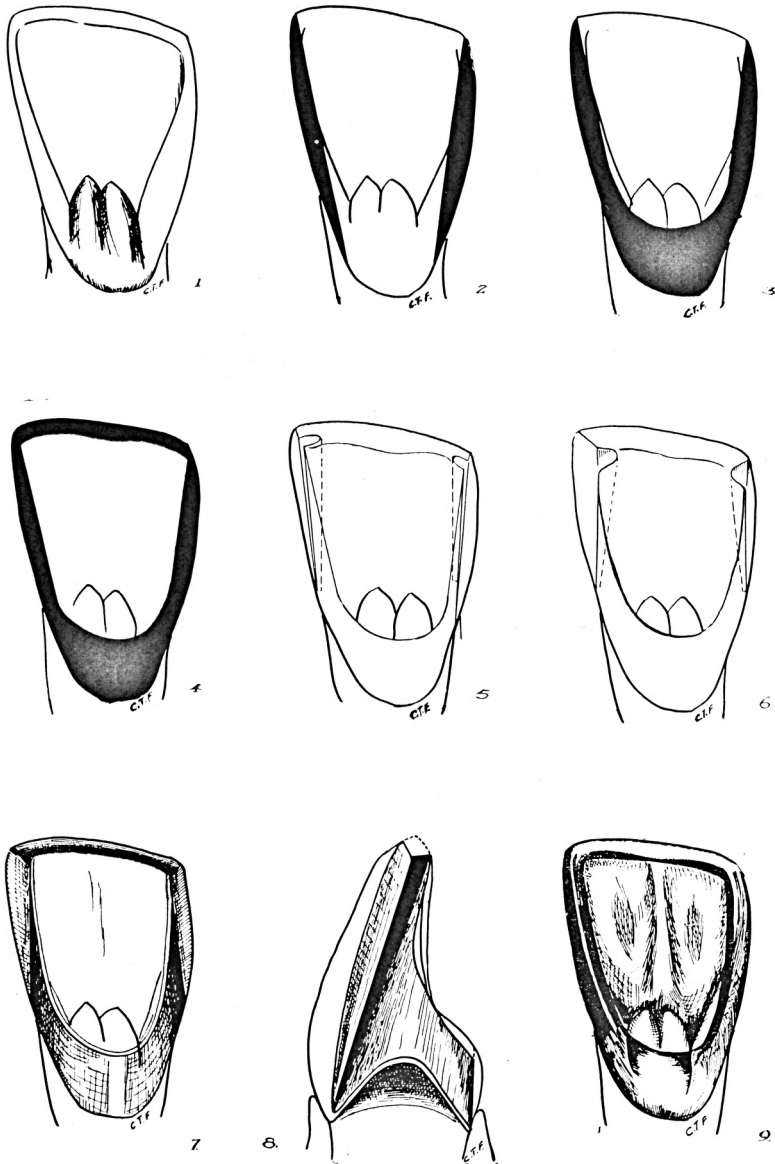


Fig. 1. Incisor-lingual surface prior to preparation. Fig. 2. Mesial and Distal Slice preparation. Fig. 3. Cervico-lingual extension of step shown in Fig. 2. Fig. 4. Incisal preparation added. Fig. 5. Schematic position of retention grooves—showing degree of taper. Fig. 6. Completed grooves, showing, Labial Bevel, and treatment of the axial surfaces posterior to grooves. Grooves have been deepened, taper increased. Fig. 7. Completed preparation, lingual aspect. Note incisal groove. Fig. 8. Lateral view, position of retention grooves, incisal groove, extent of gingival extension of preparation. Fig. 9. The attachment in place on tooth. Note, there should be no departure in anatomical contour, from that of the original tooth.

No. 600 L Bur, in a contra angle handpiece, and polished with a Moore's cuttlefish disk. This area exists posterior to the lingual margins of the approximal grooves.

Step Six

The labial aspect of the approximal grooves is bevelled, so that there will be no loose enamel rods to fracture away.

Step Seven

With a knife edge, or inverted cone stone, a groove is made across the incisal surface from mesial to distal, connecting the approximal grooves, then finished. A slight bevel is made with a tapering stone about the margins surrounding the lingual fossae and the cingulum. The pattern is obtained indirectly, adapted to the tooth, removed and cast. With the use of the waxes whose flow is about forty, investment of the high heat variety, and gold alloys meeting the specifications for tough, hard golds, we have a casting demanding little attention other than polishing.

The indications for its use on vital teeth:

1. Incisors and Cuspids—upper or lower where splinting appliances are necessary when Roentgenographic evidence and clinical findings point to a possible arrest of the periodontal lesion being effected by decrease of mobility and prevention of trauma,
2. Closing of contacts, preventing a shifting occlusion or rotation, and
3. When systematic disease affecting the periodontium is controlled.

Contraindications:

1. Teeth of weak structure, and,
2. Where unchecked systematic disease precludes successful local treatment of periclasia.

Advantages:

1. It reduces the extent of removal of tooth structure. (The same end obtained with three-quarter crown and pinledge attachments.)
2. It restores contacts without severe mutilation of other parts of the tooth.
3. A reduction of the extent of employment and display of gold, and,
4. It permits the use of the original lingual surfaces.

Disadvantages:

None.