

# Preparation for partial coverage crowns

**Dr Modar Ahmad**  
**D.D.S, M.Sc, Ph.D.,**  
*Prosthodontist*  
*Dental Implantologist*  
*Cosmetic Dentist*

# Definition

- The partial coverage crown is a conservative restoration that requires less destruction of tooth structure than a full coverage crown.
- Tooth with a full coverage crown is about 2.5 times likely to have pulp problem as one with a partial coverage crown\*.
- A partial coverage crown should be considered first when a cast restoration is needed.

\* Felton D, Madison S, Kanoy E, Kantor M, Maryniuk G. Long-term effects of crown preparation on pulp vitality [abstract 1139]. J Dent Res 1989;68:1008. J Prosthet Dent 1990;63:1008.

# Advantages of partial coverage restorations

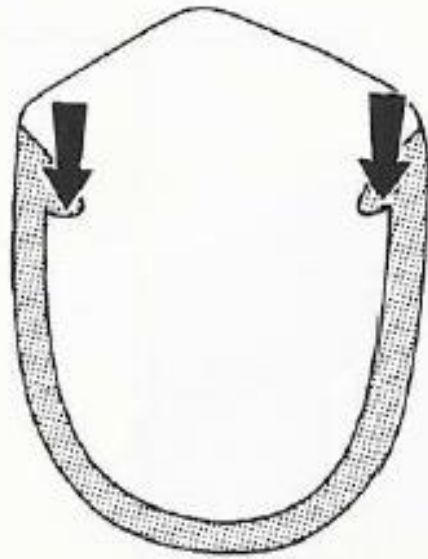
- Tooth structure is spared.
- Much of the margin is accessible for the dentist for finishing and for the patient for cleaning.
- Less restoration margin is in proximity to gingiva crevice, reducing the possibility of periodontal irritation.
- An open-faced partial coverage crown is more easily seated completely during cementation, whereas a full coverage crown tends to act like a hydraulic cylinder containing a highly viscous fluid.
- If an electric pulp test is needed, a portion of enamel is unveneered and accessible.

# Retentions

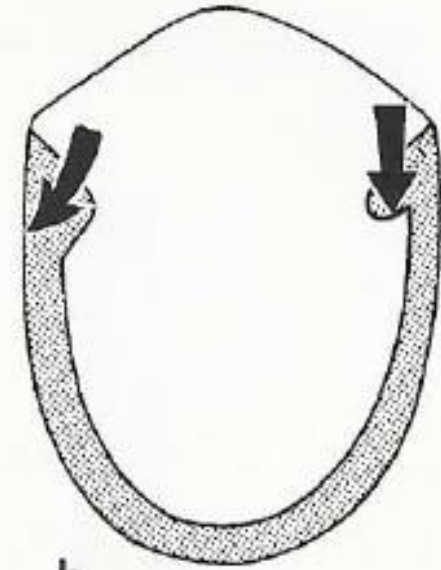
- A partial coverage crown is not as retentive as a full coverage crown, but it has adequate retention for a single restorations and retainers for short-span fixed partial dentures.
- The most commonly used feature is a groove.

# Grooves

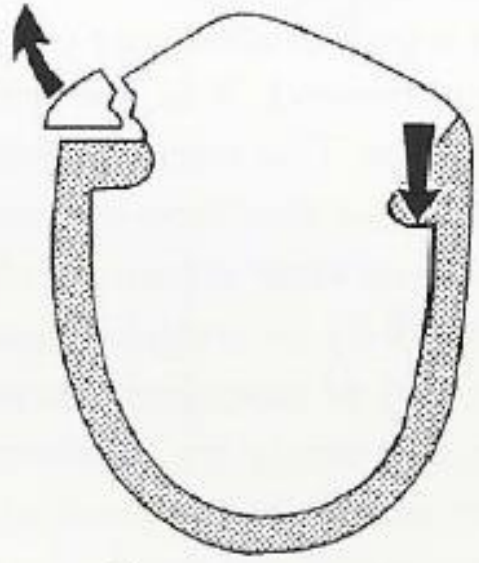
- To achieve maximum effectiveness, grooves must have definite lingual walls. Resistance to torquing is produced by achieving a lingual hook or a lock affect. By directing the bur slightly to the opposite corner of the tooth.



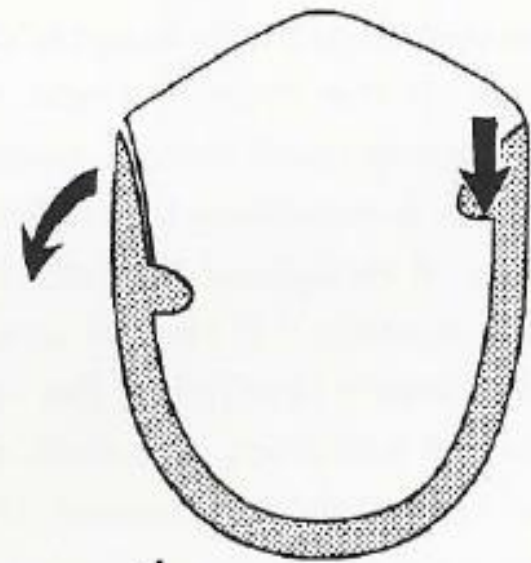
a



b



c



d

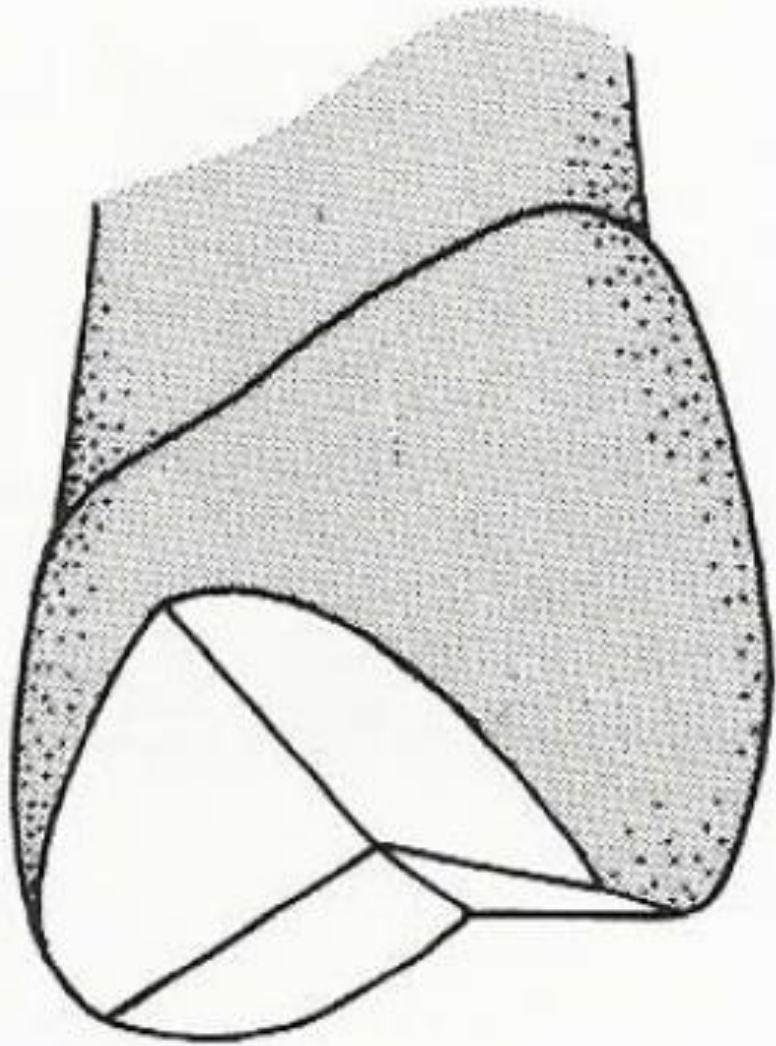
# Posterior partial coverage variations

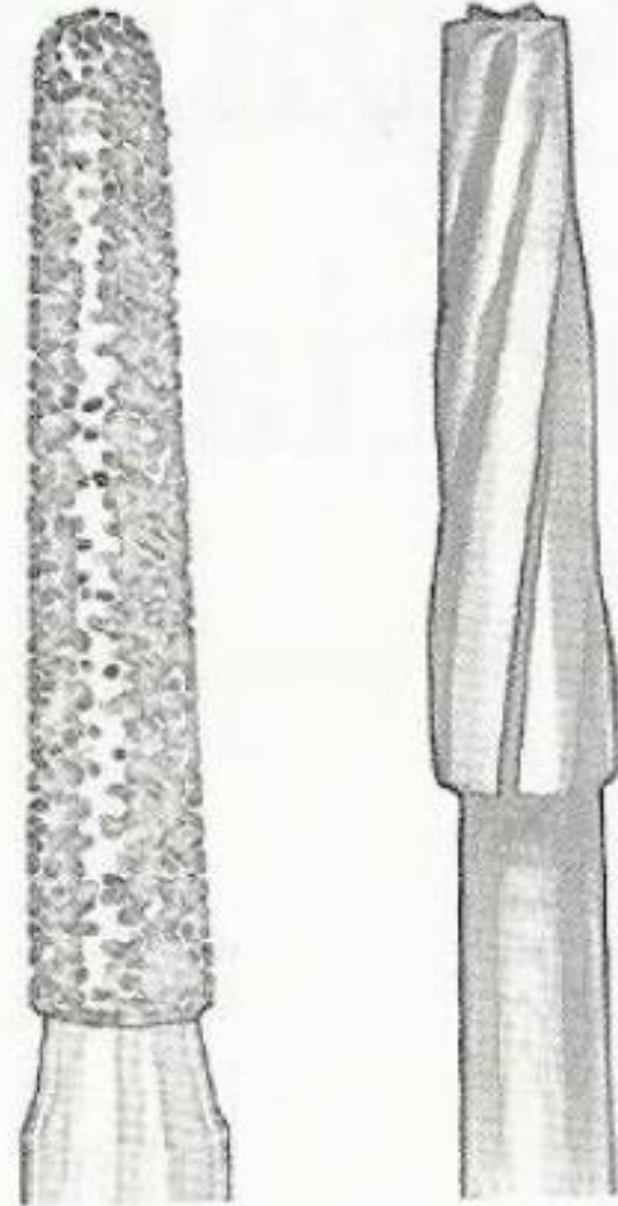
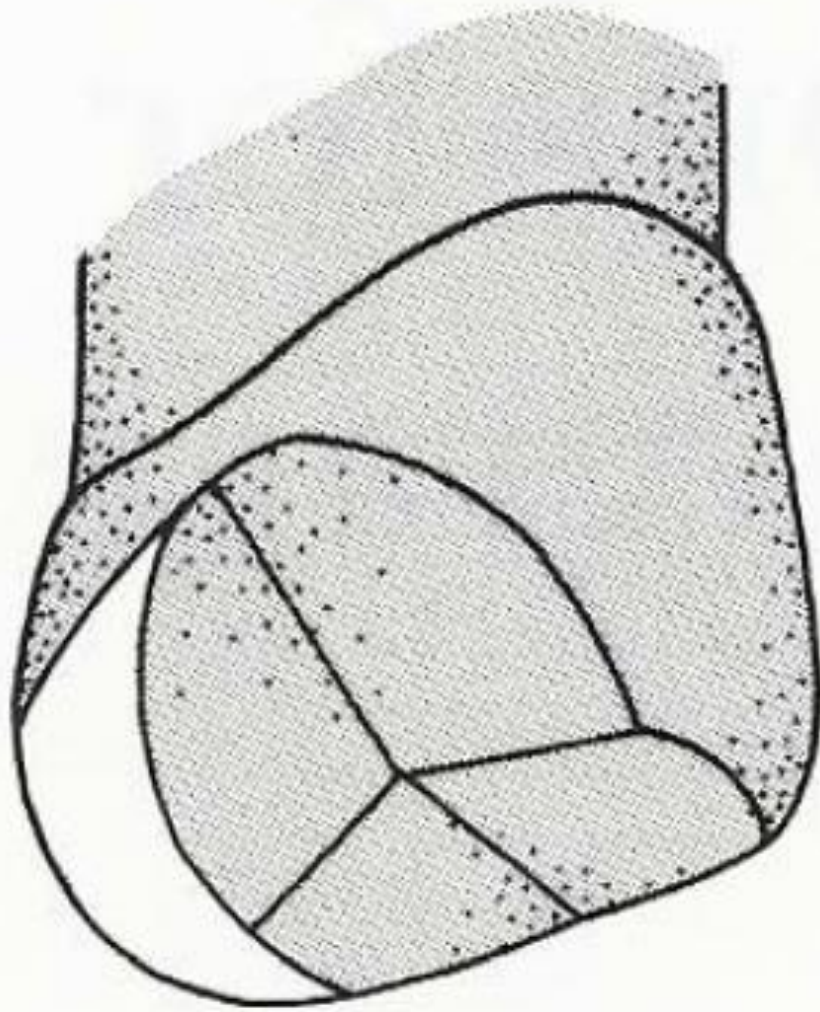
- There are several modifications of posterior partial coverage crowns that can be used. A three quarter crown preparation with proximal grooves is most common to save the buccal face of the prepared tooth.
- Metal should be less displayed in these preparations

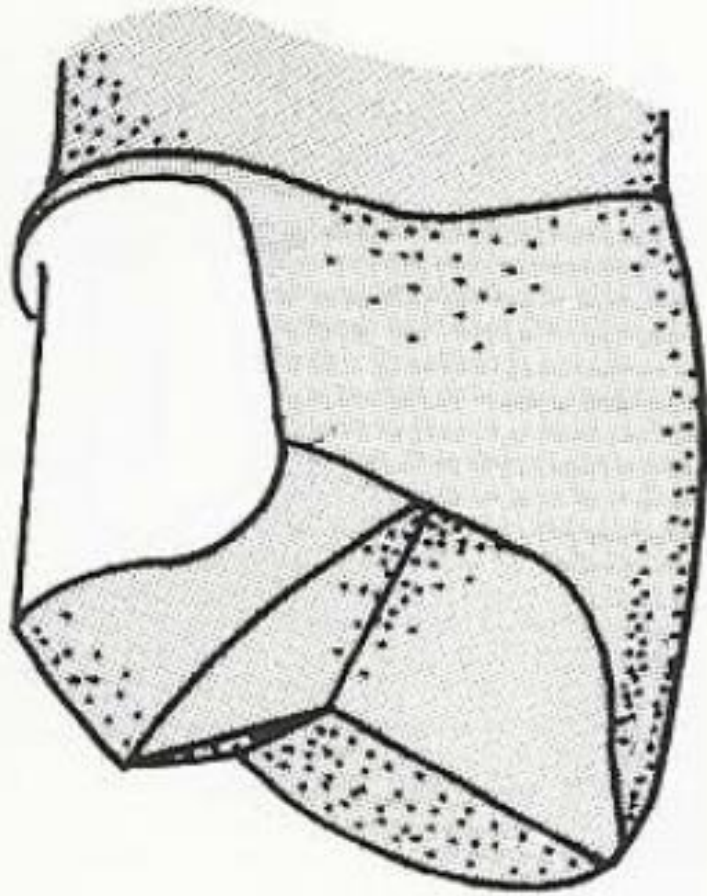
# Factors to produce a restoration with a minimal display of metal

1. Path of insertion and groove placement.
2. Placement and instrument of extensions.

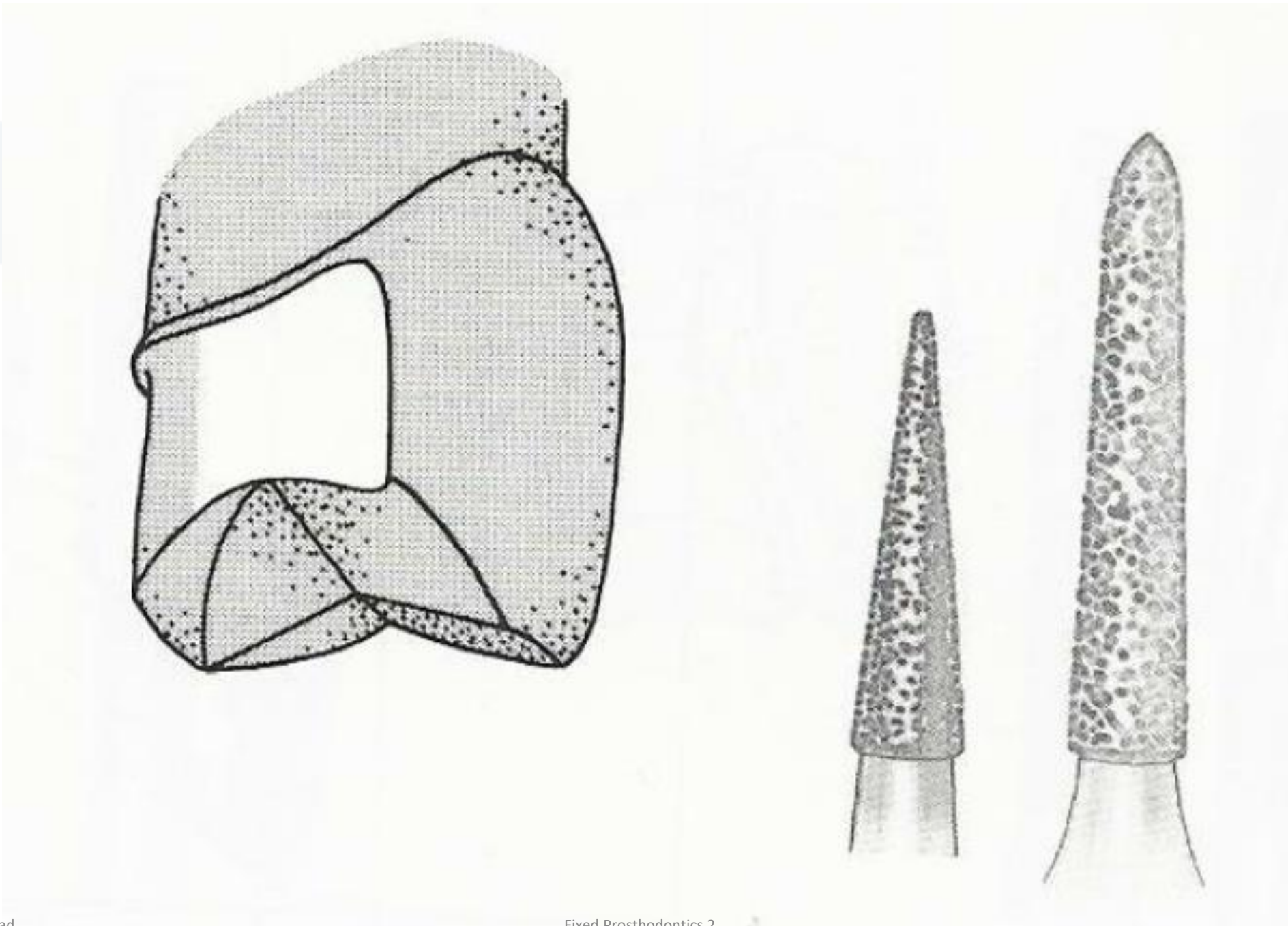


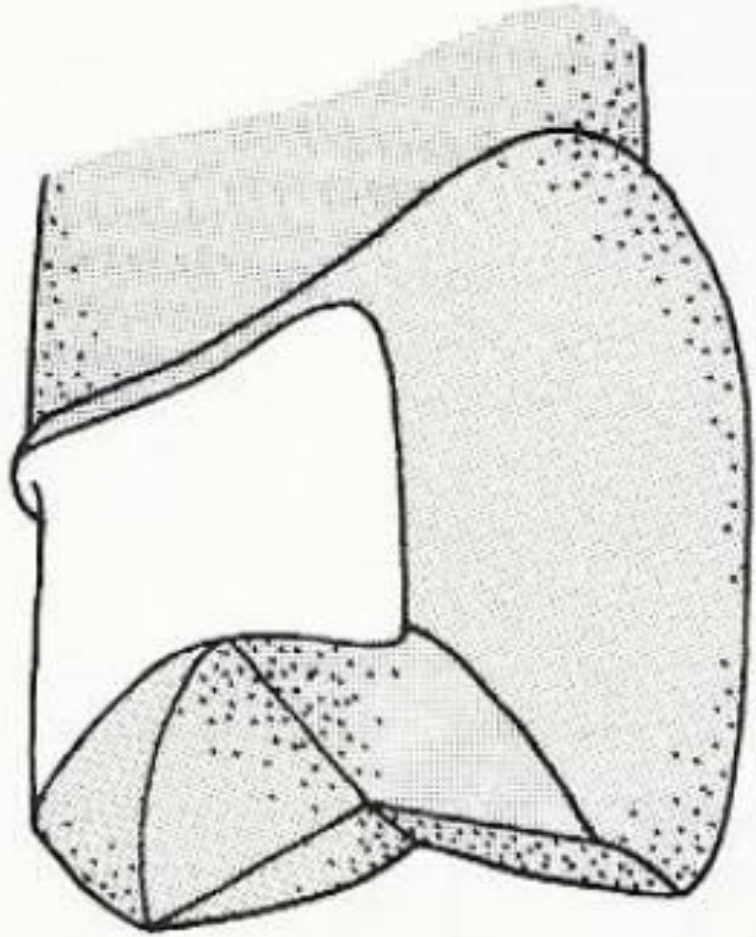


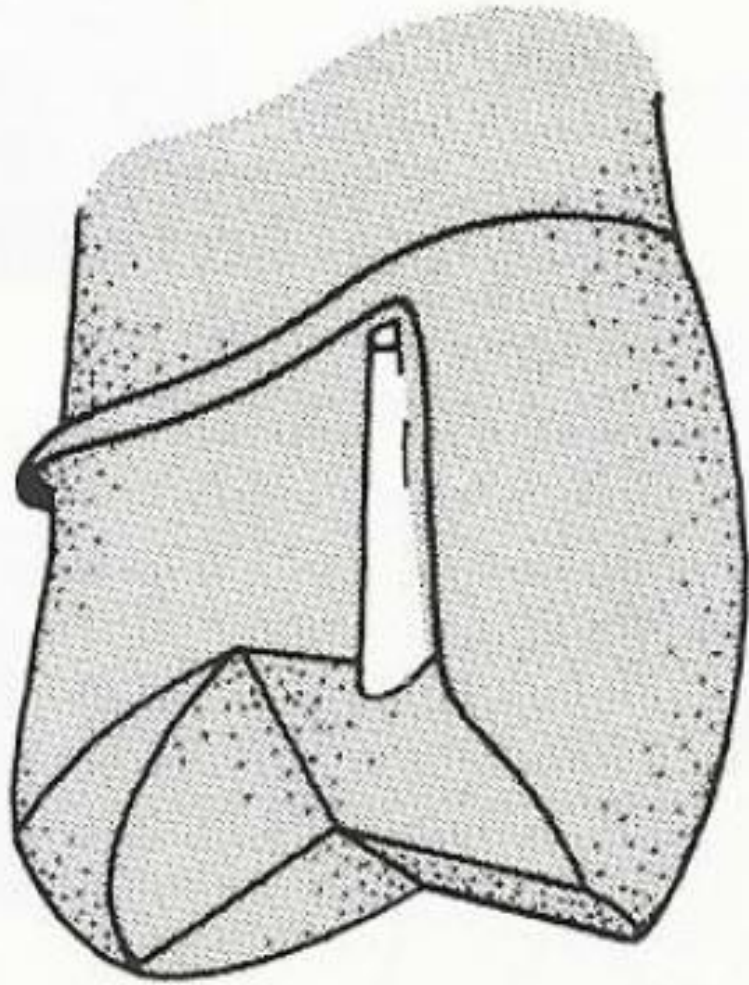


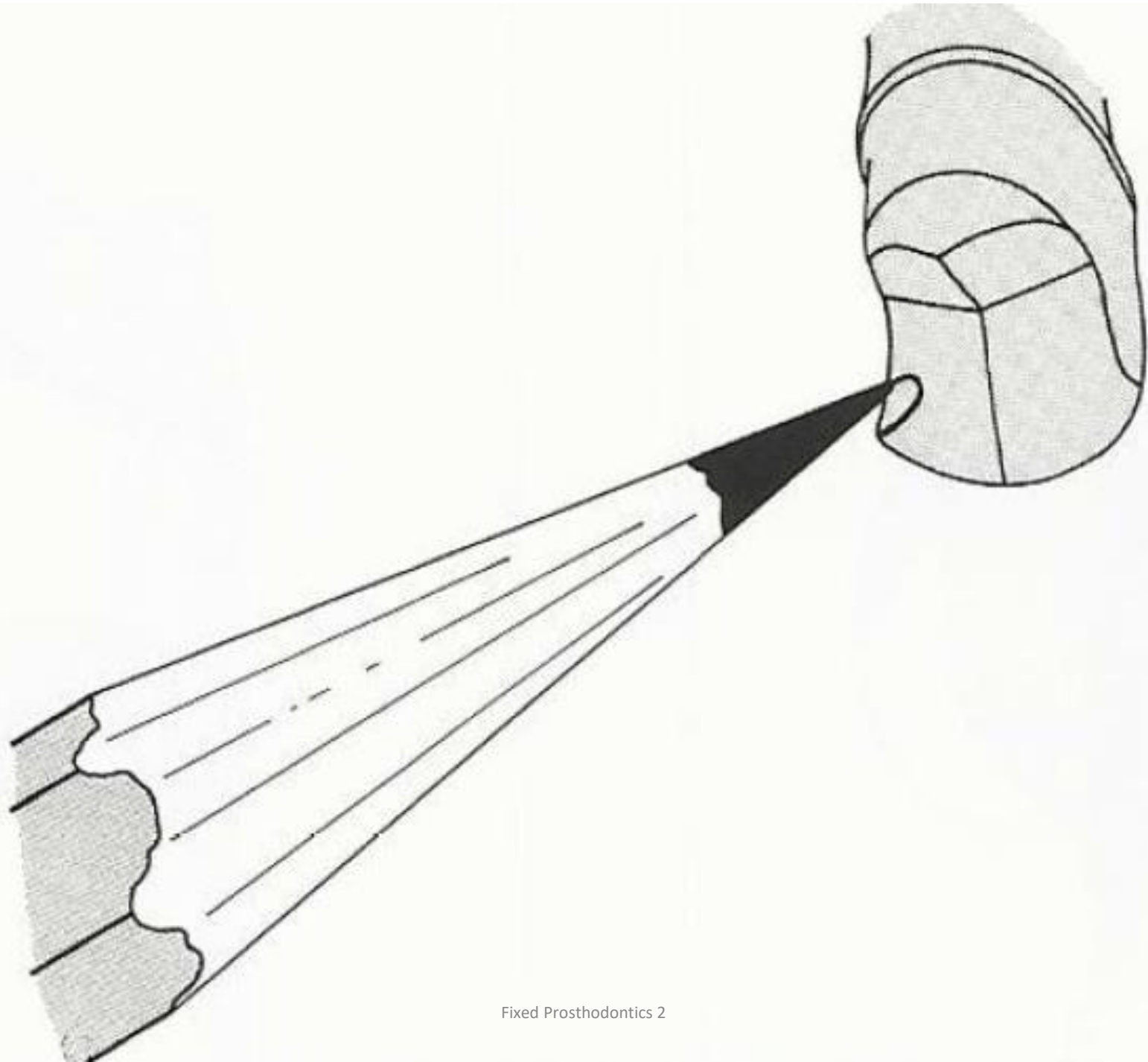


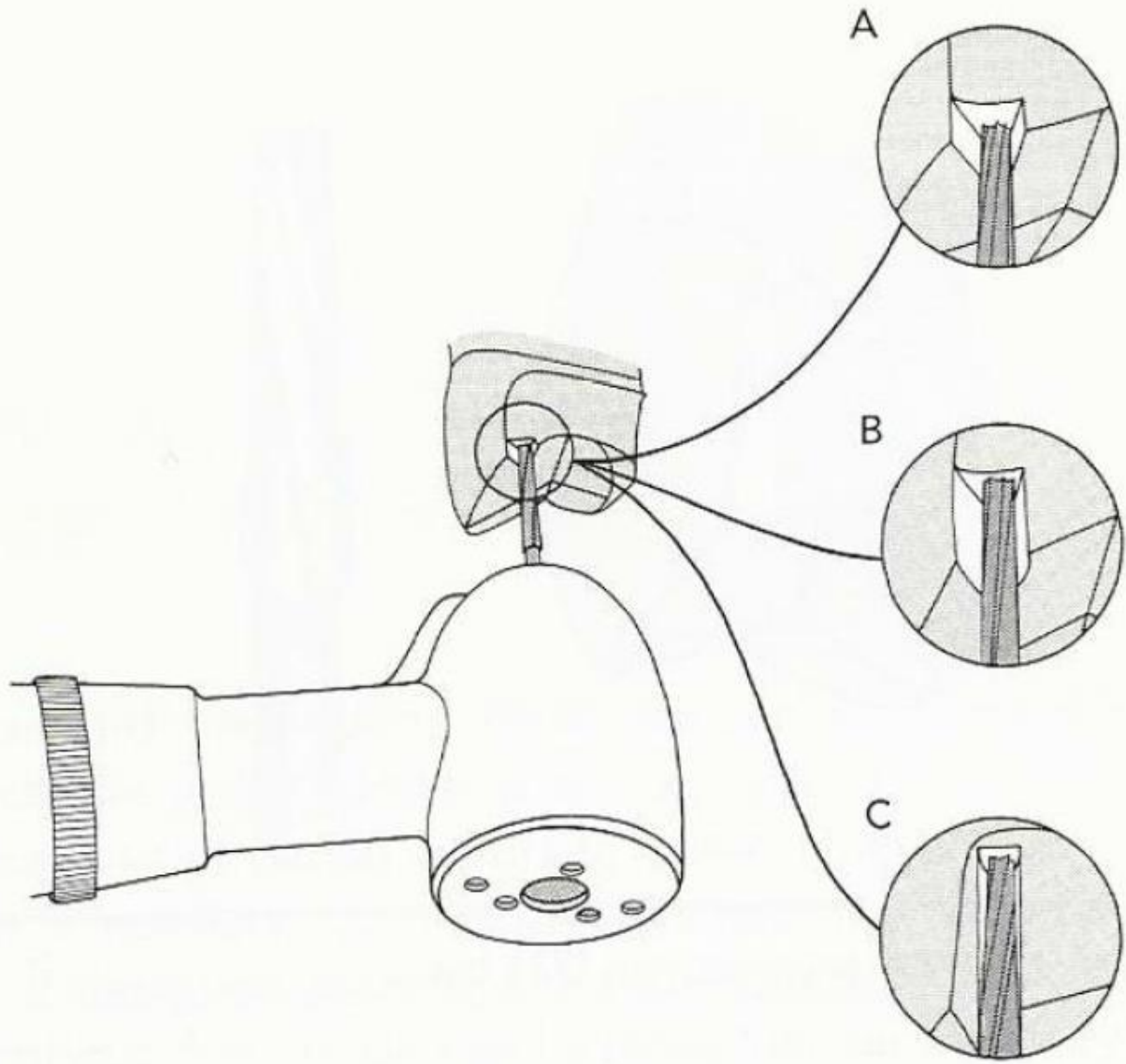






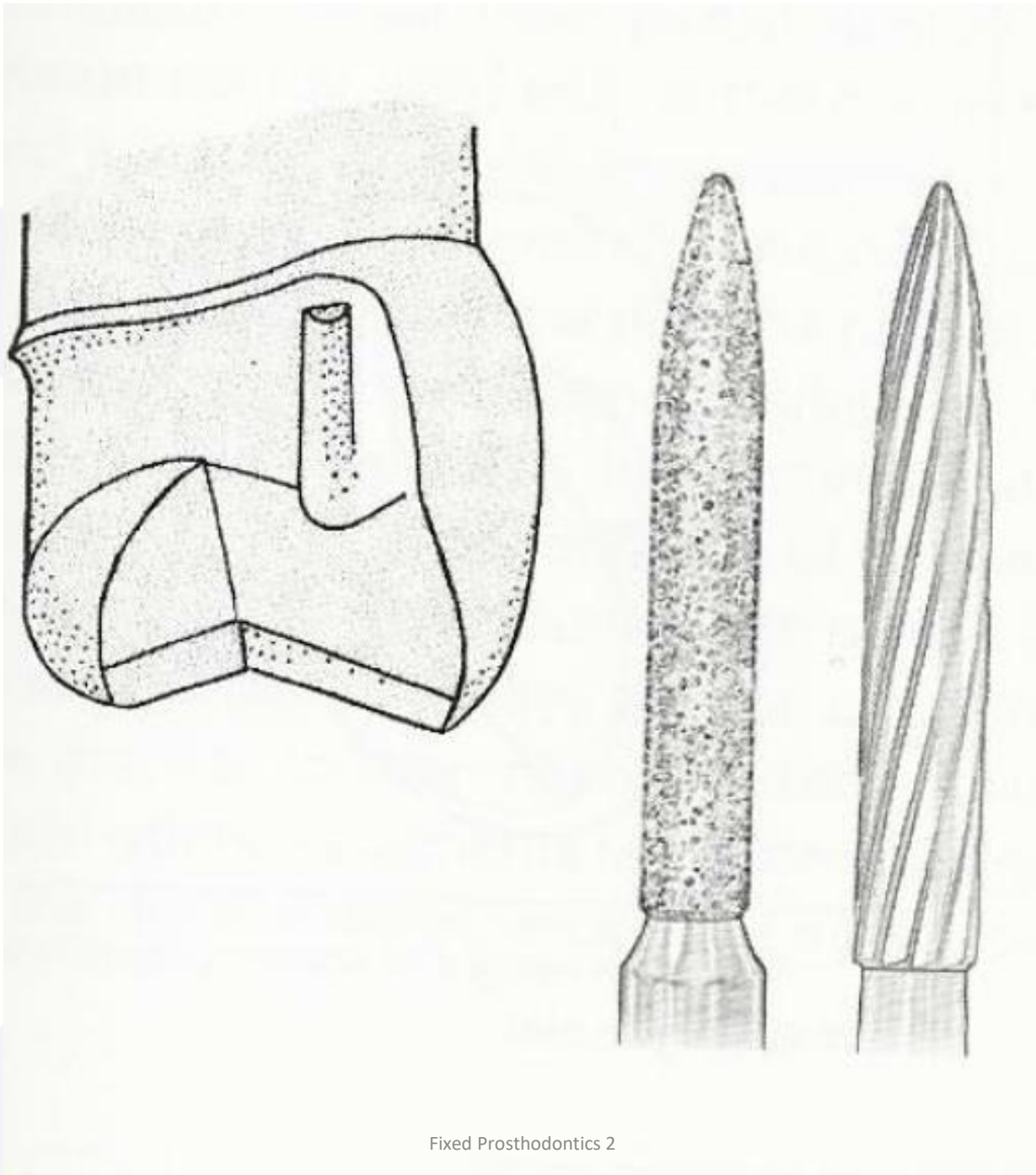


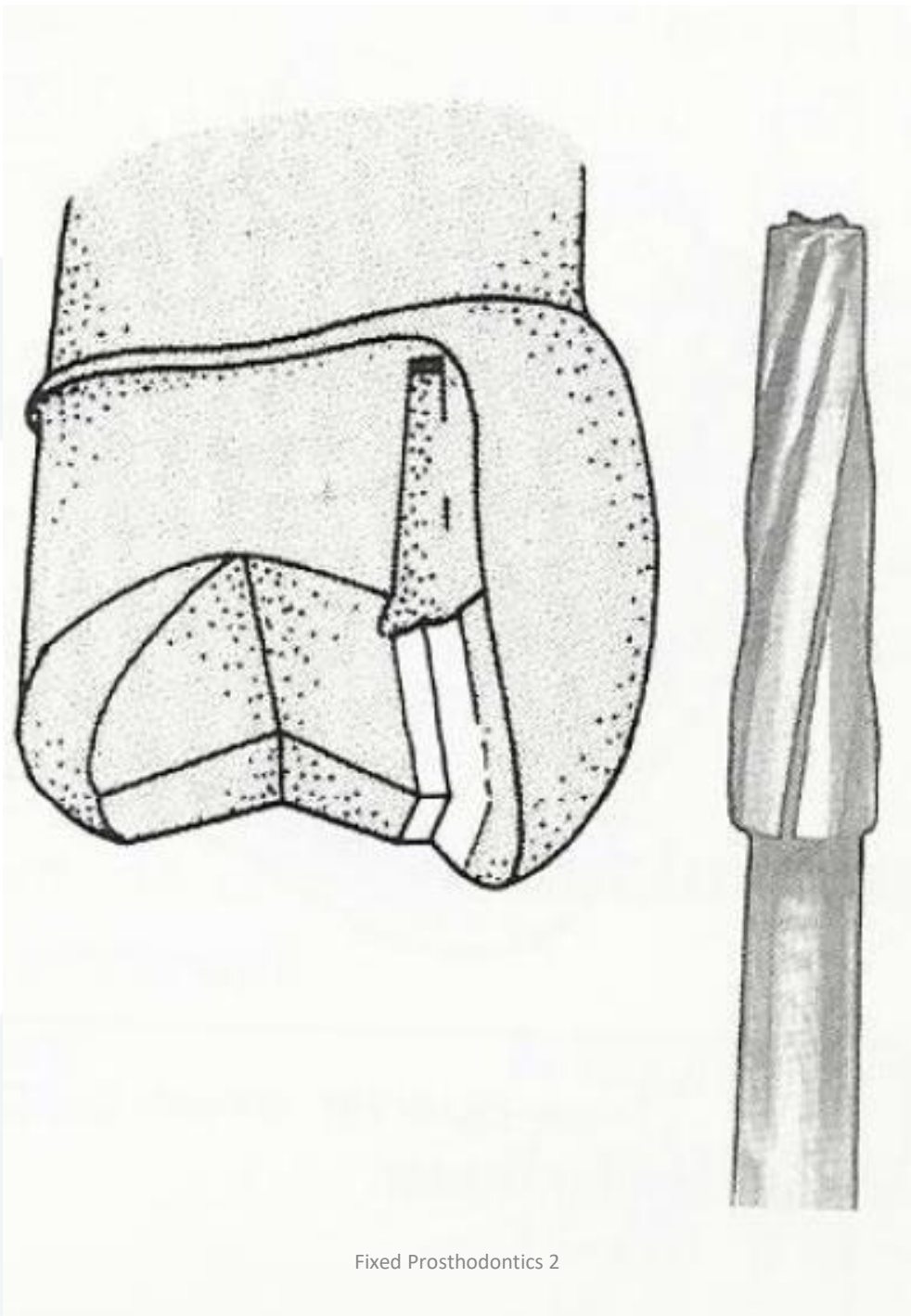


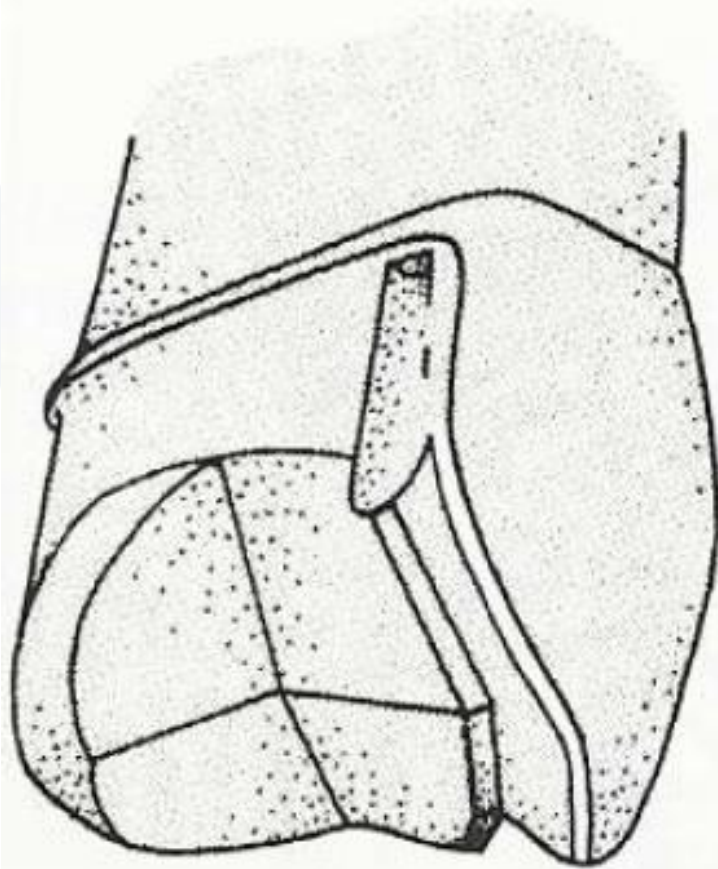














Chamfer  
Marginal integrity  
Periodontal preservation

Proximal groove  
Retention and resistance  
Structural durability

Axial reduction  
Retention and resistance  
Structural durability

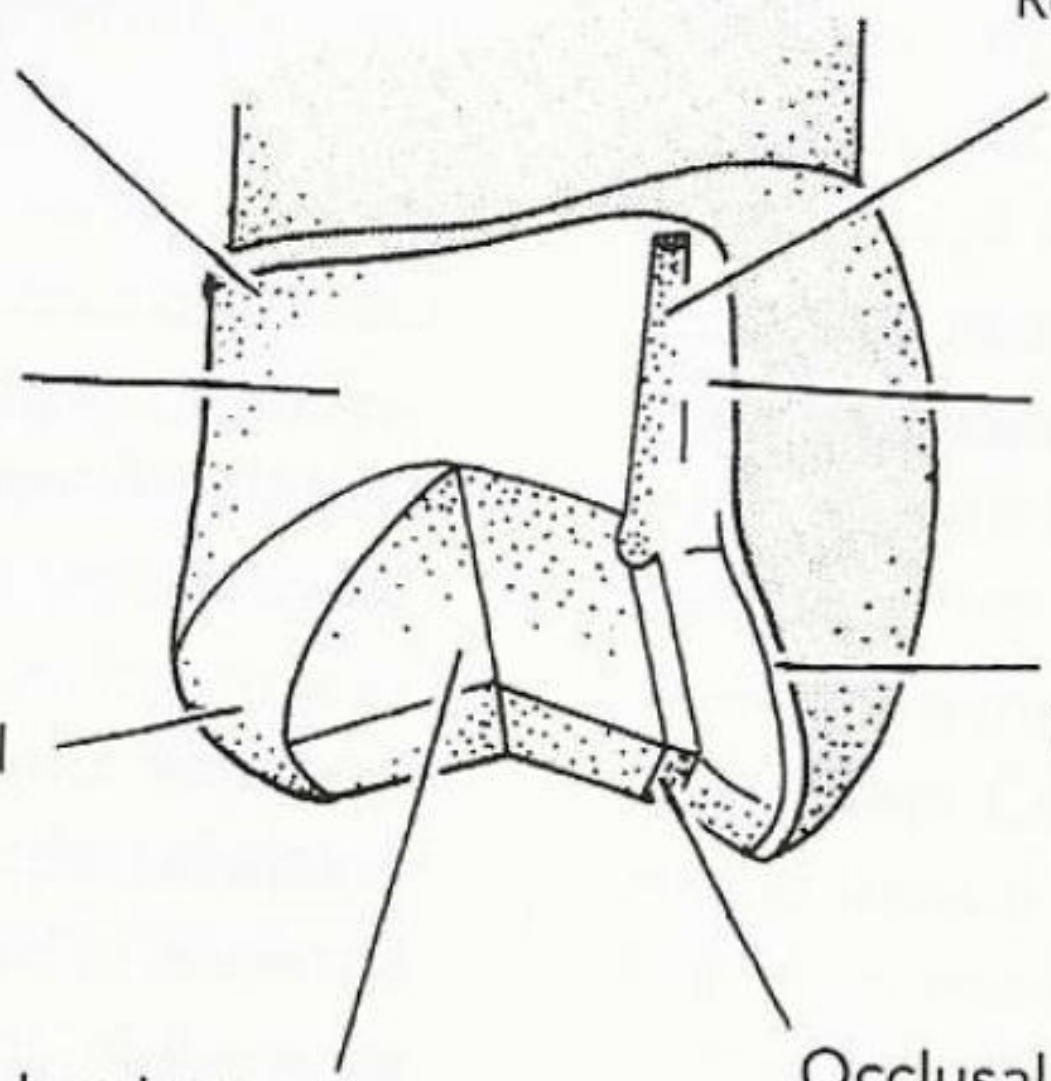
Proximal flare  
Marginal integrity

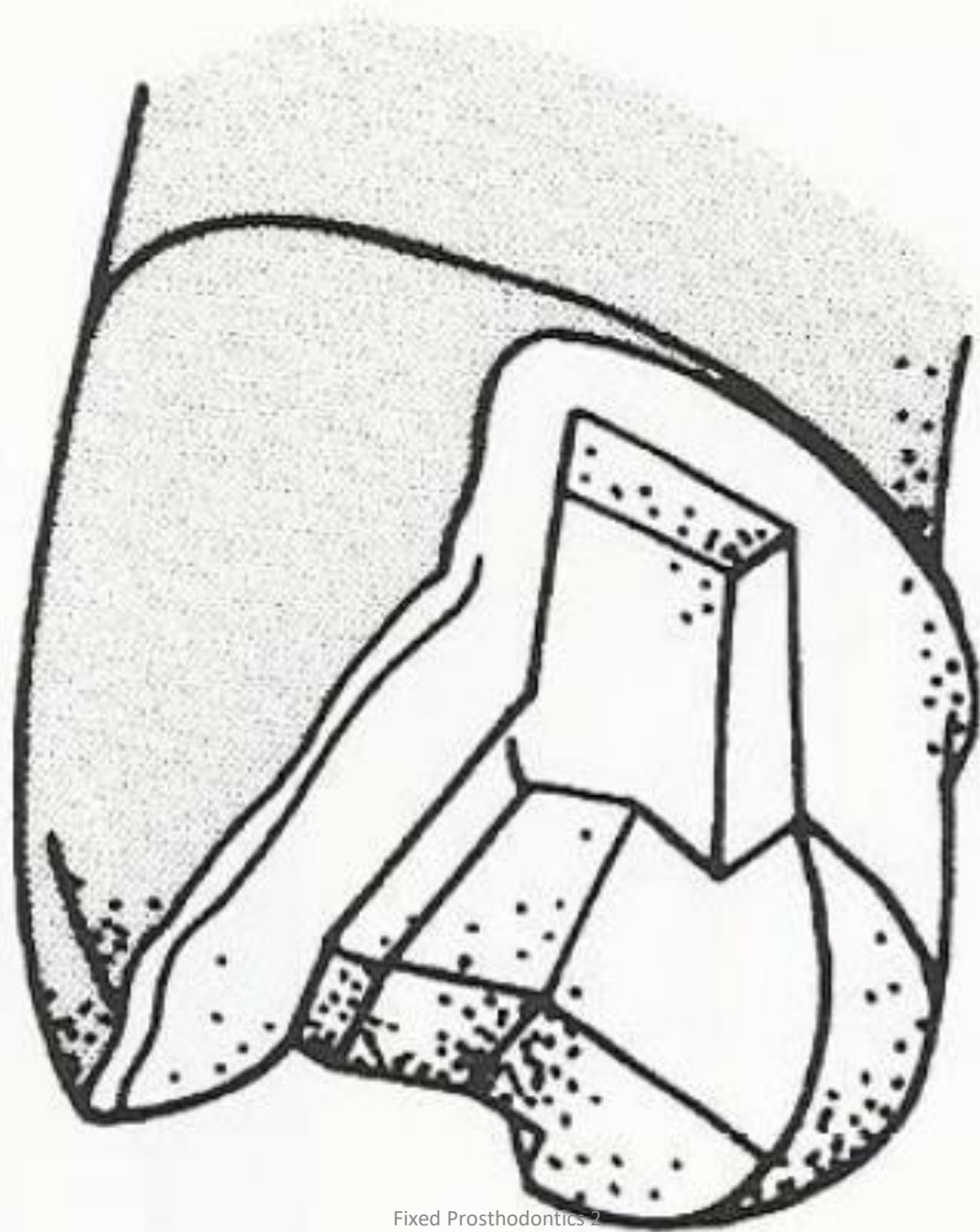
Functional cusp bevel  
Structural durability

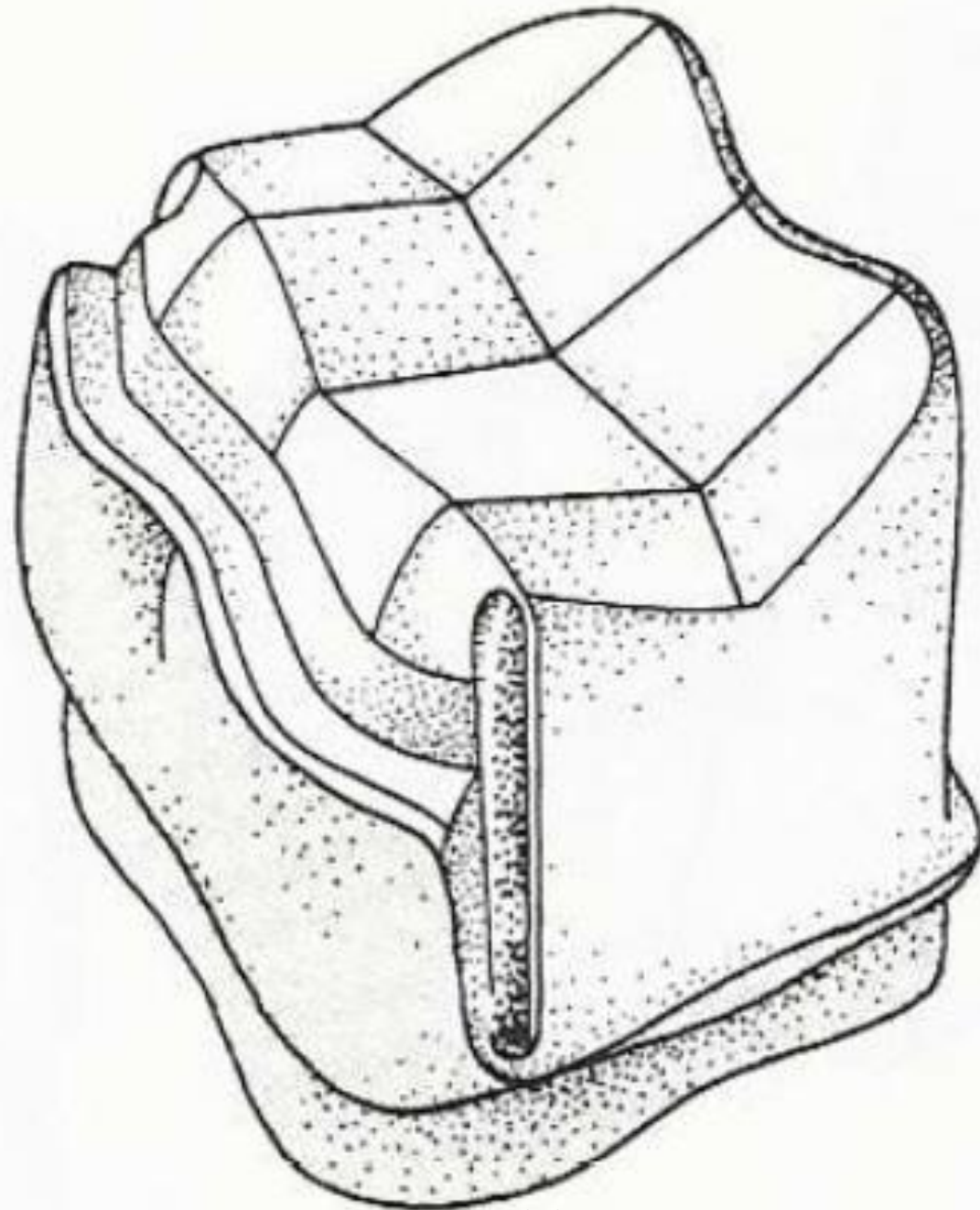
Facial bevel  
Marginal integrity

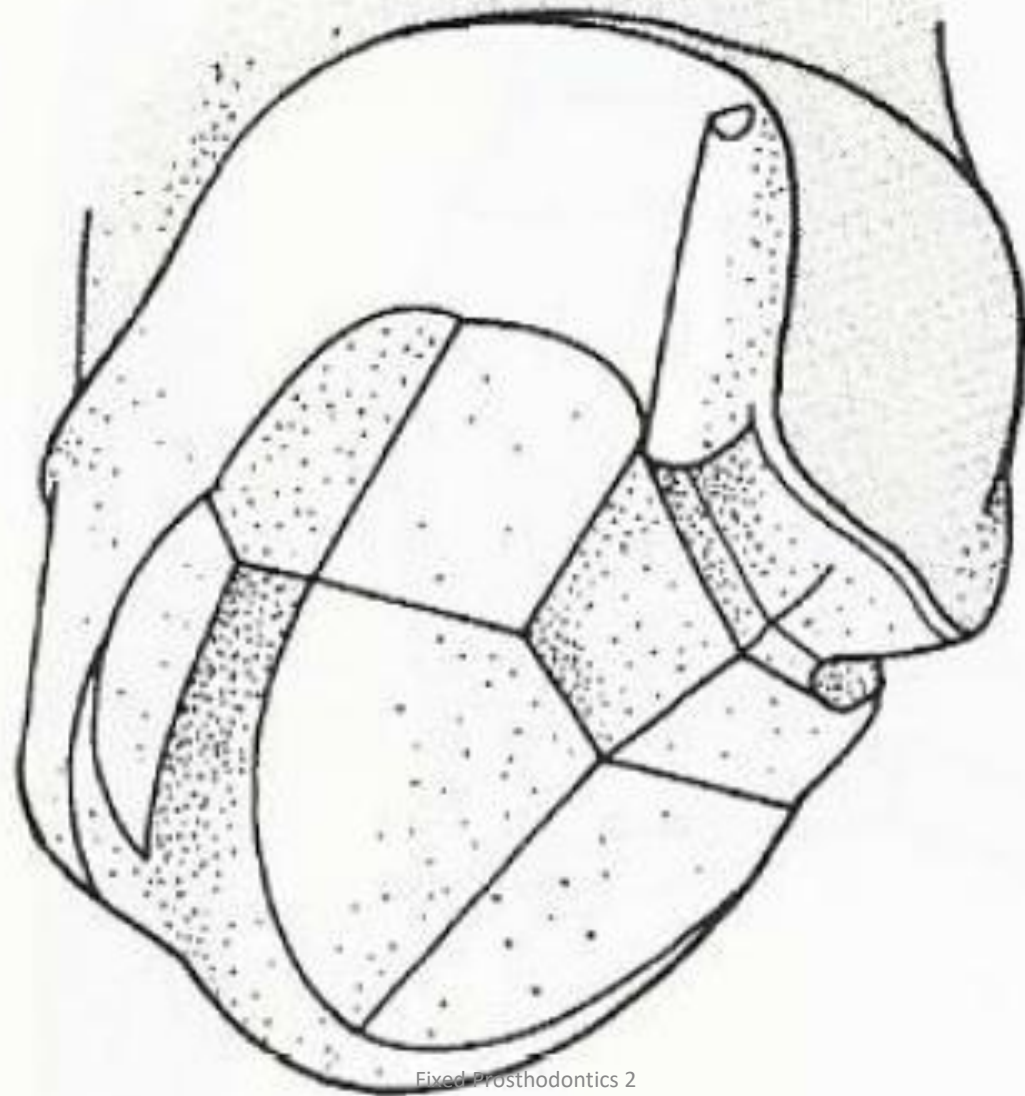
Planar occlusal reduction  
Structural durability

Occlusal offset  
Structural durability

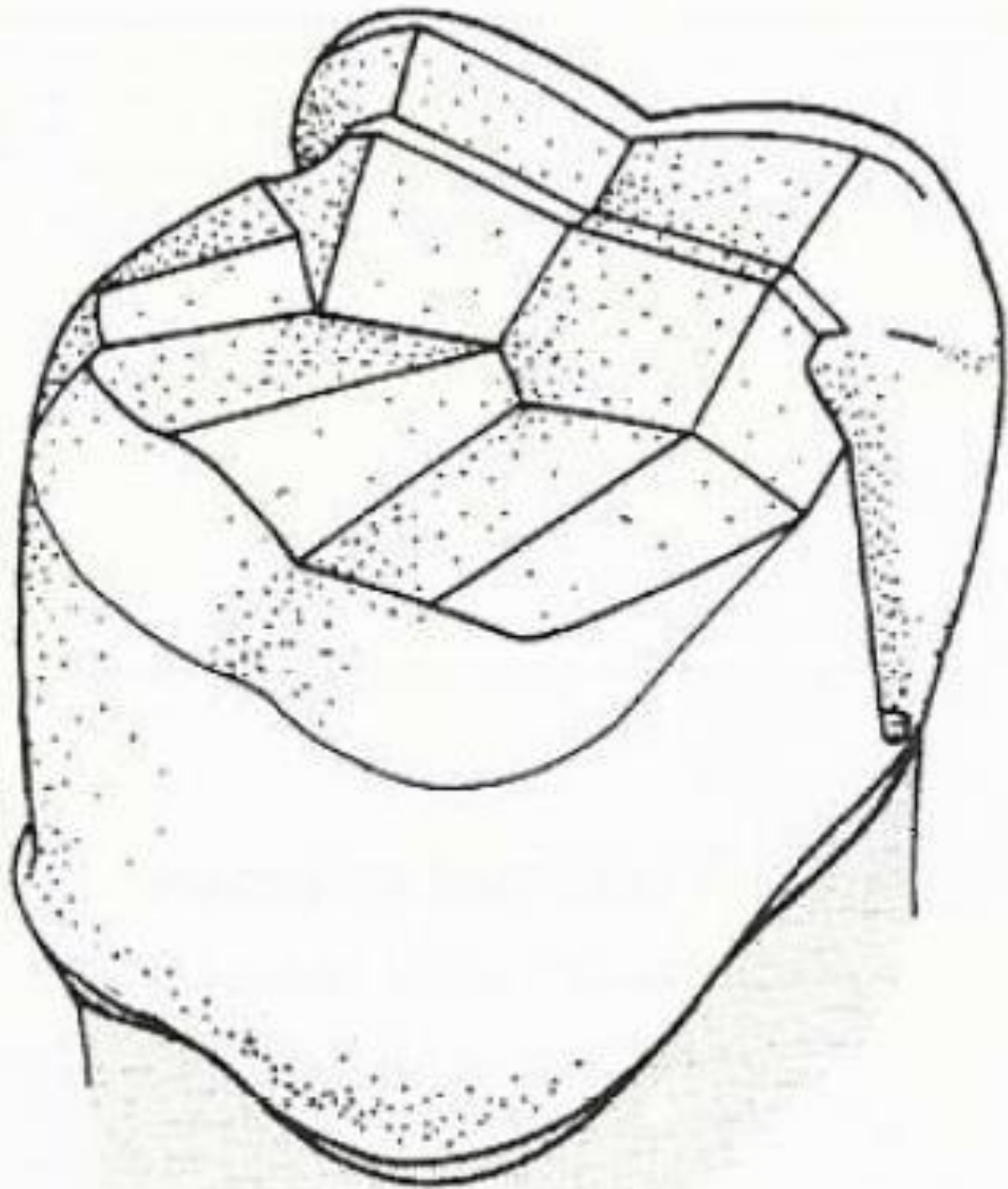


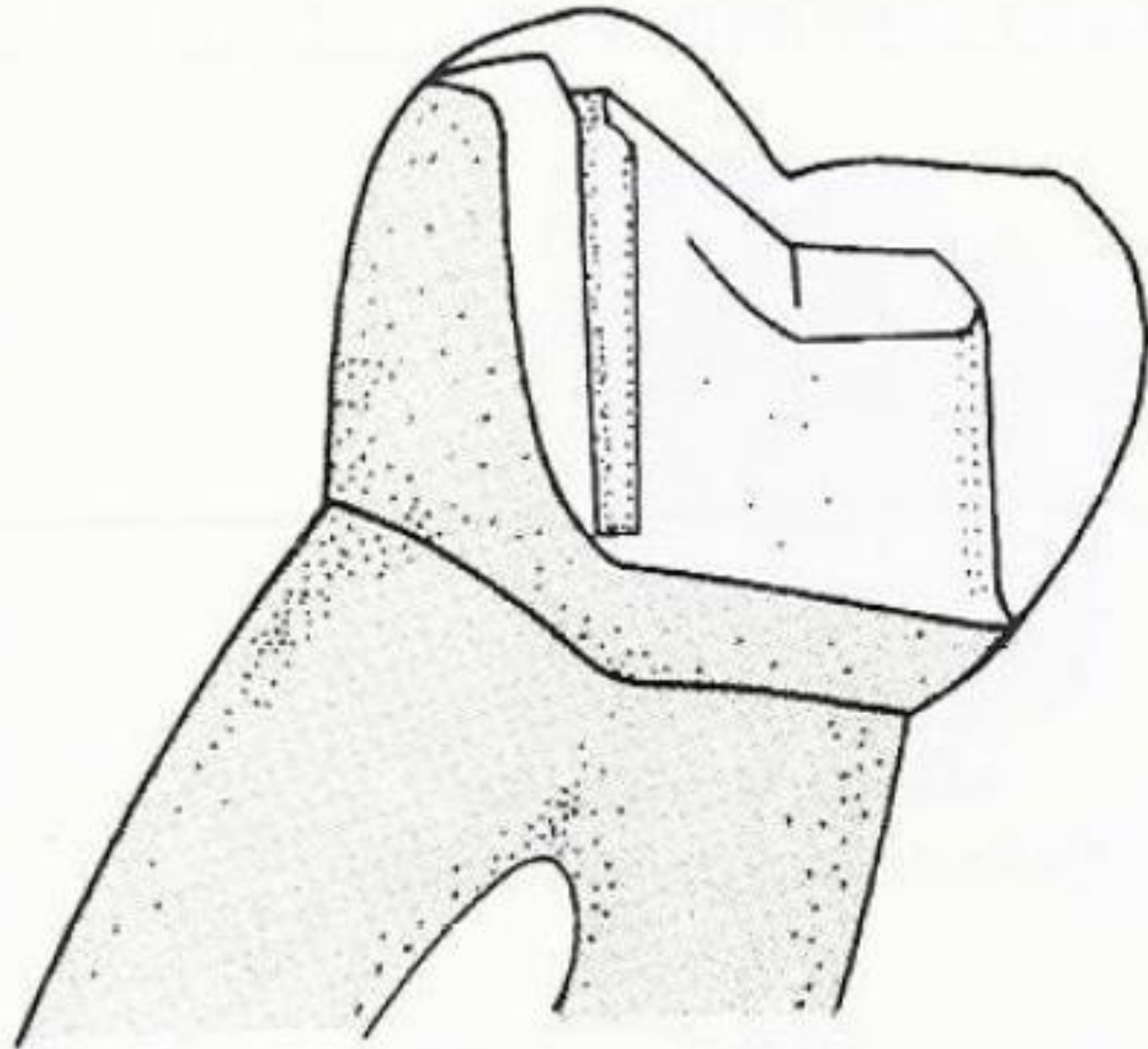




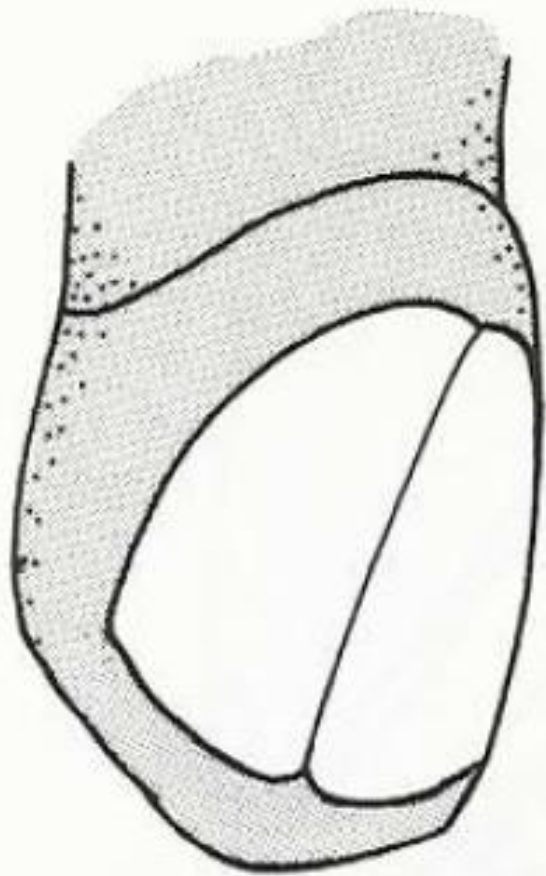




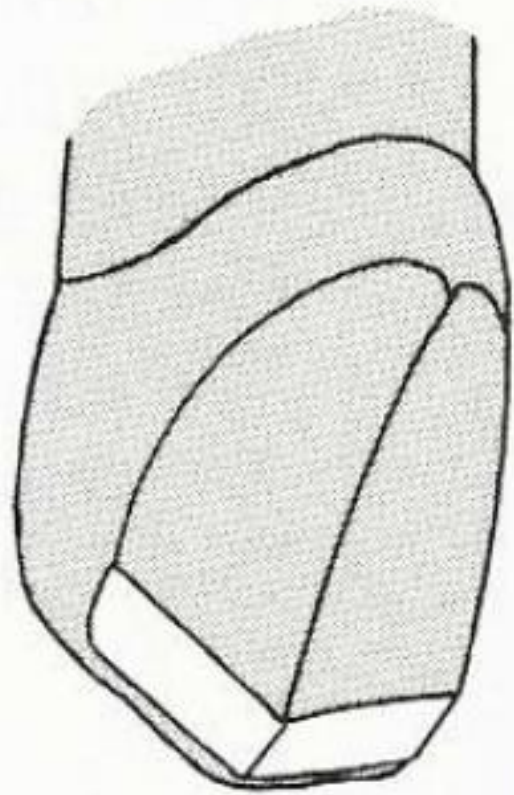


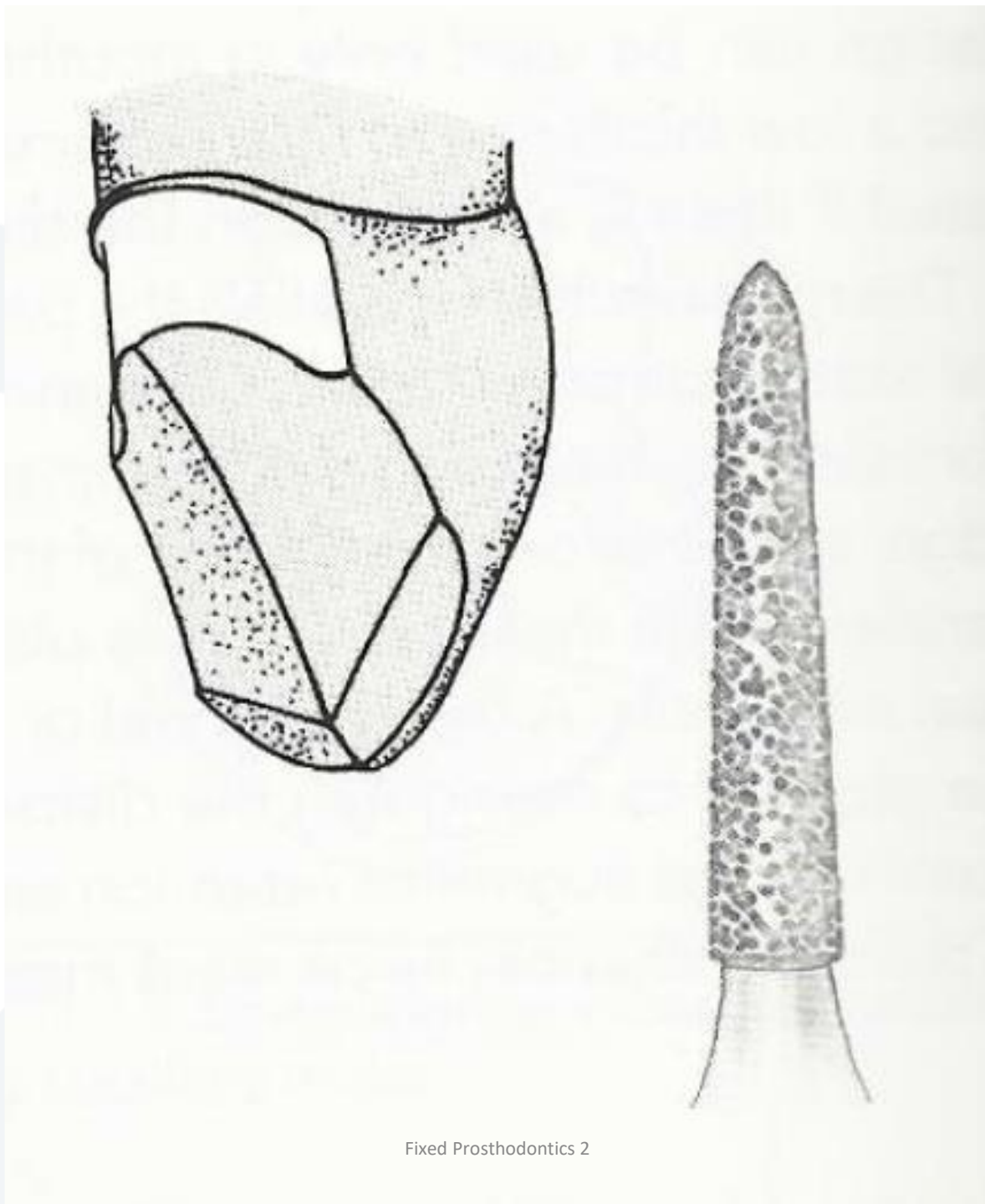




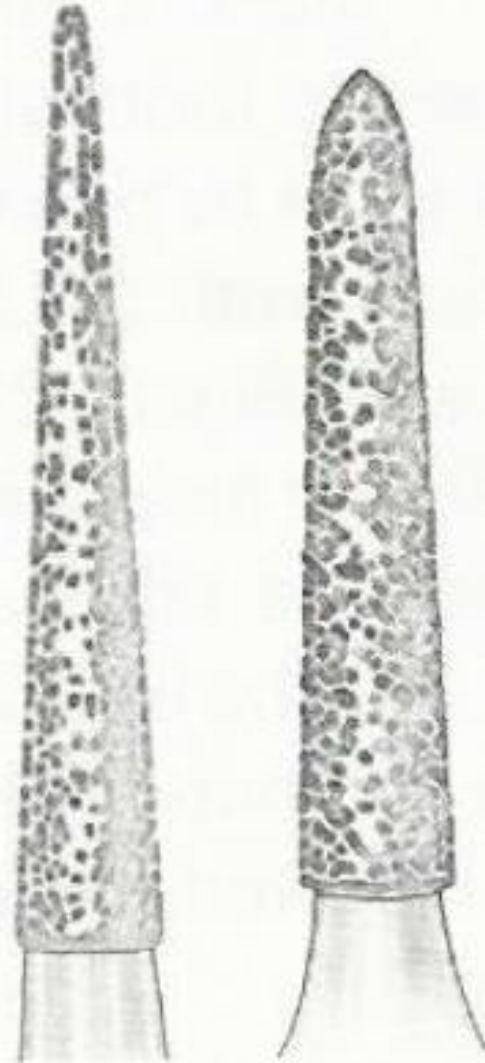
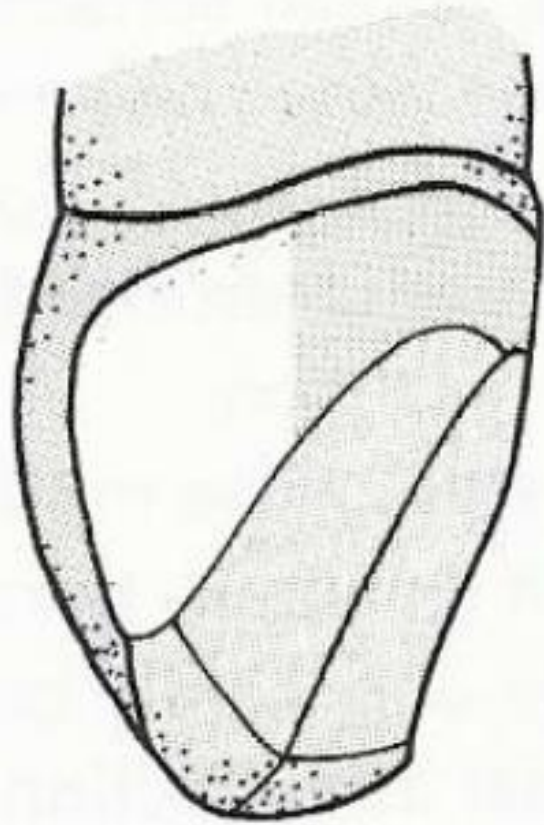


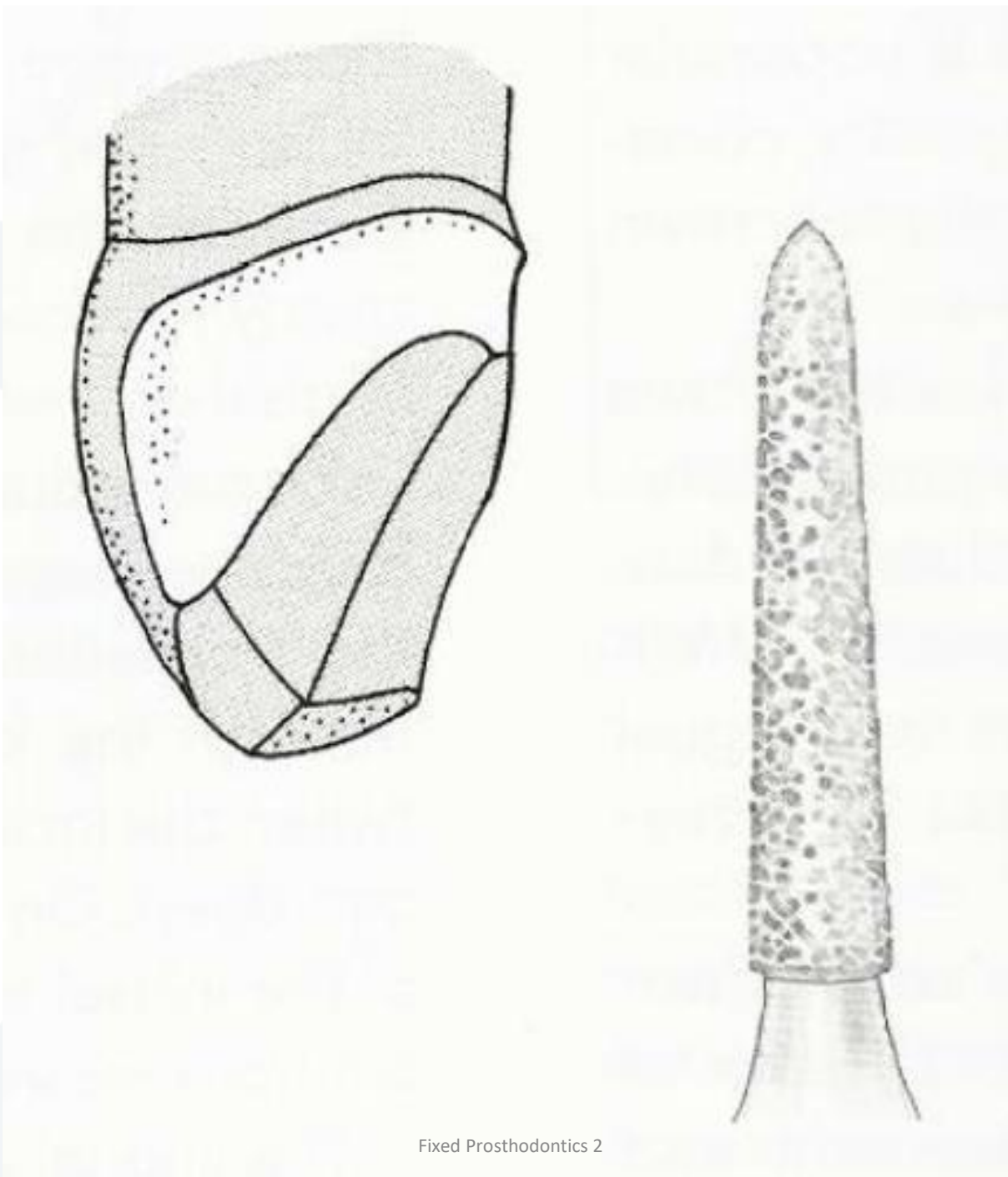
Fixed Prosthodontics 2



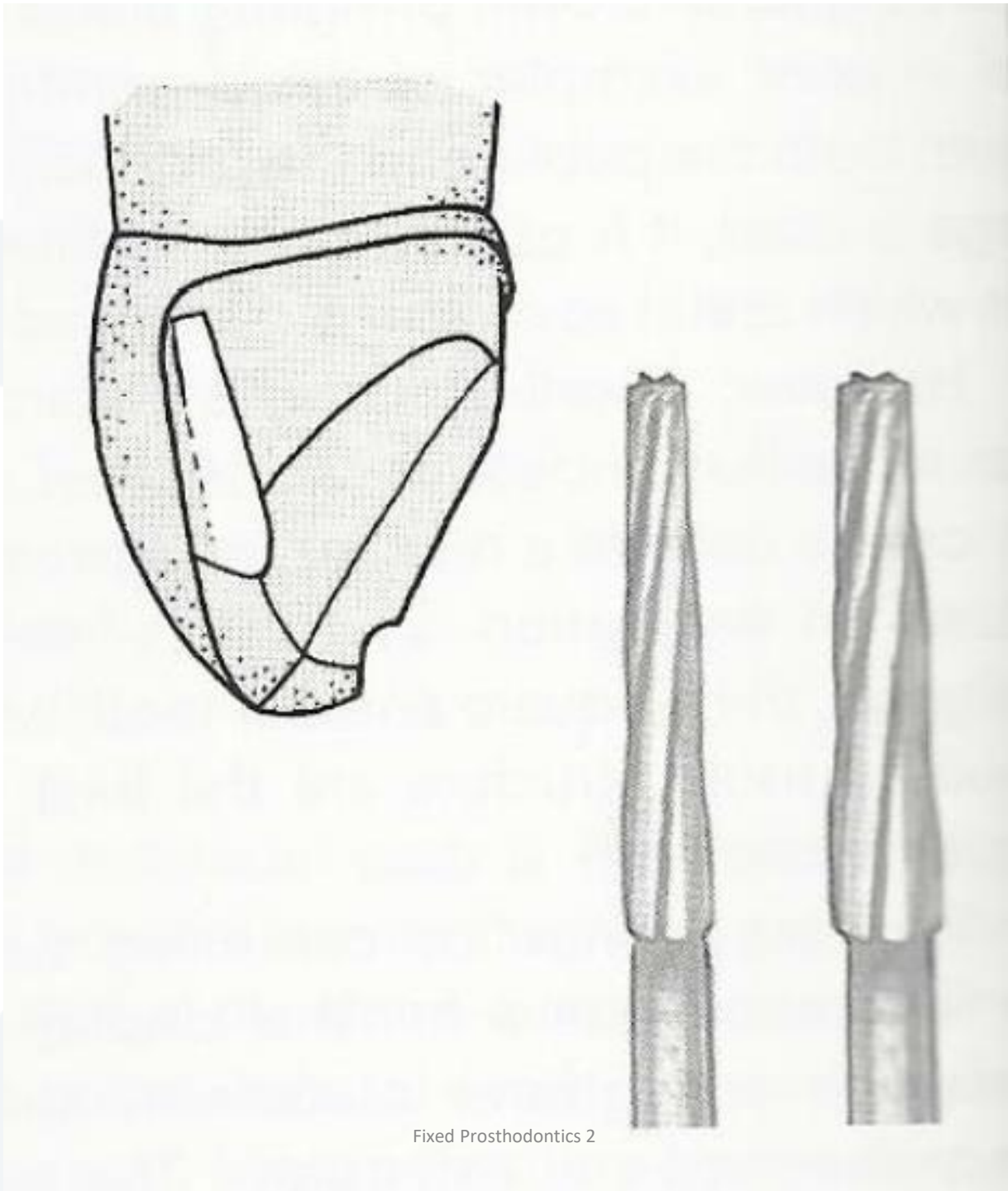


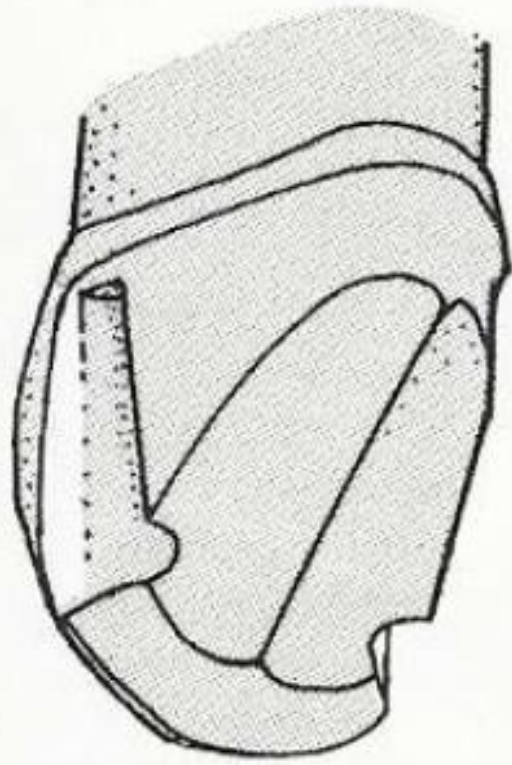


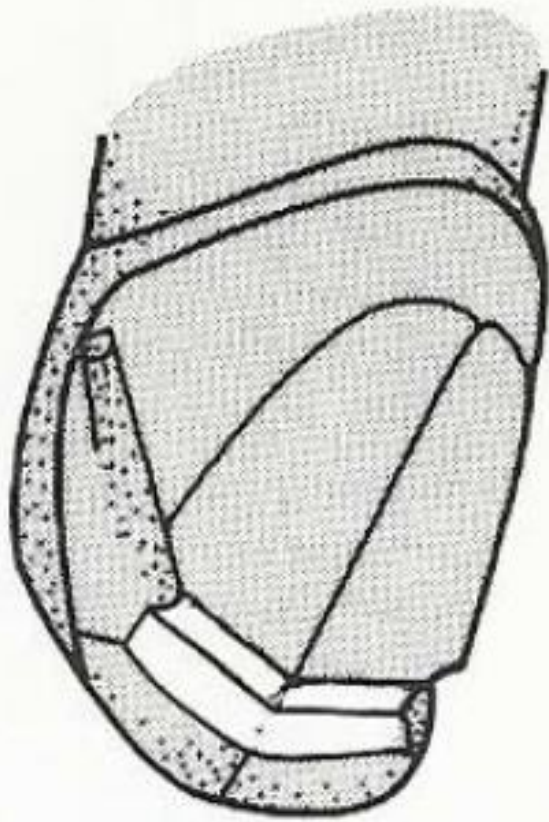


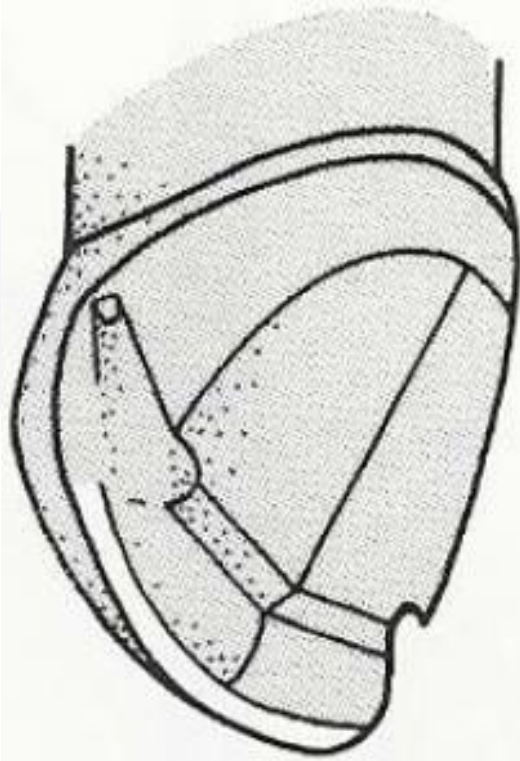








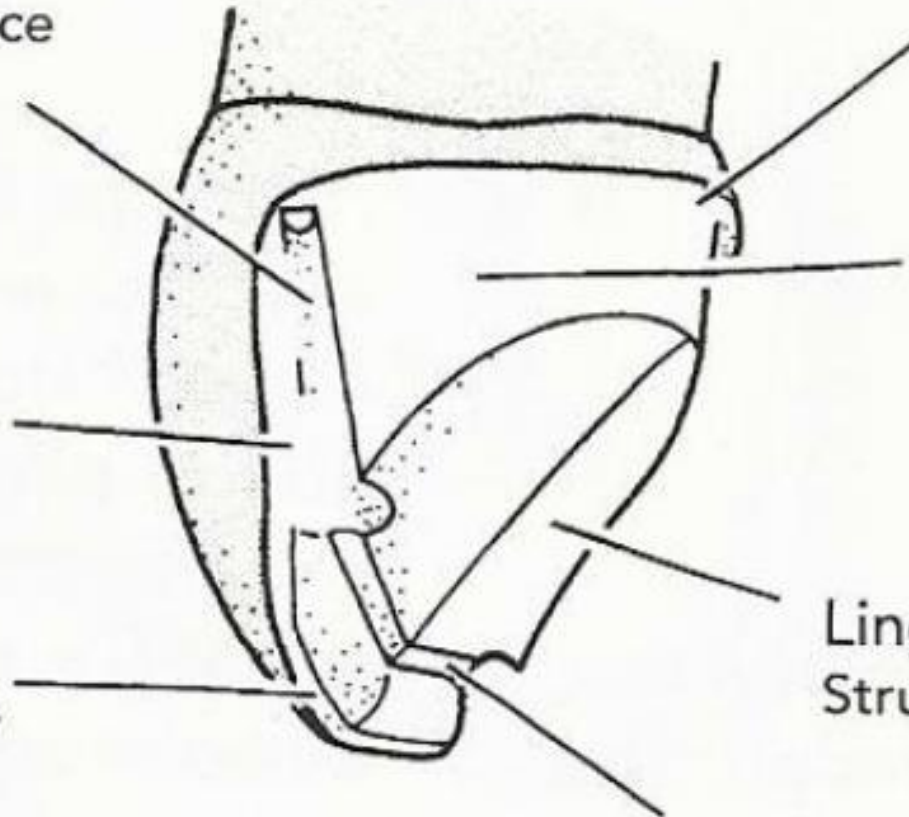




Proximal groove  
Retention and resistance  
Structural durability

Proximal flare  
Marginal integrity

Incisal bevel  
Marginal integrity



Chamfer  
Marginal integrity  
Periodontal preservation

Axial reduction  
Retention and resistance  
Periodontal preservation  
Structural durability

Lingual reduction  
Structural durability

Incisal offset  
Structural durability





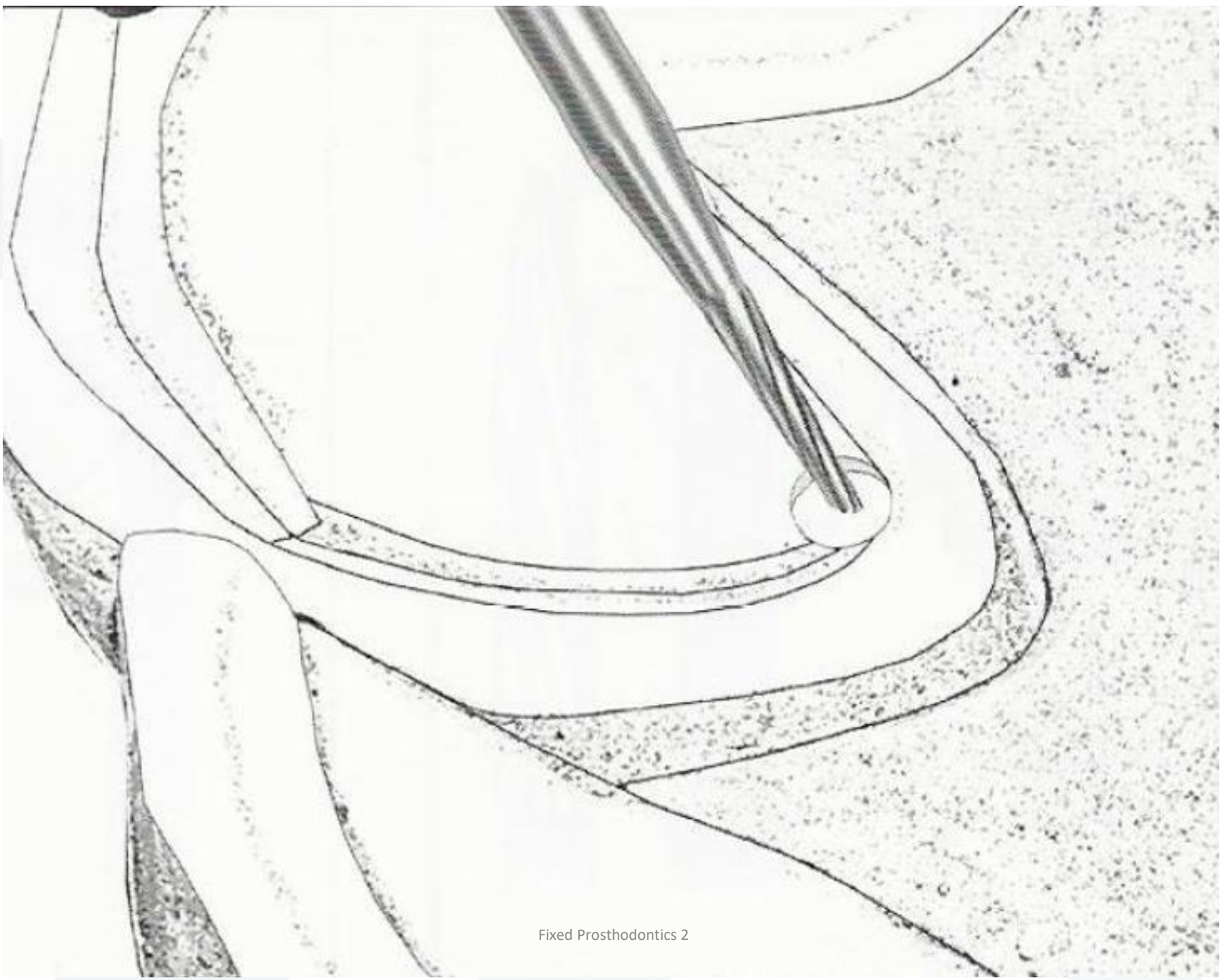
**a**

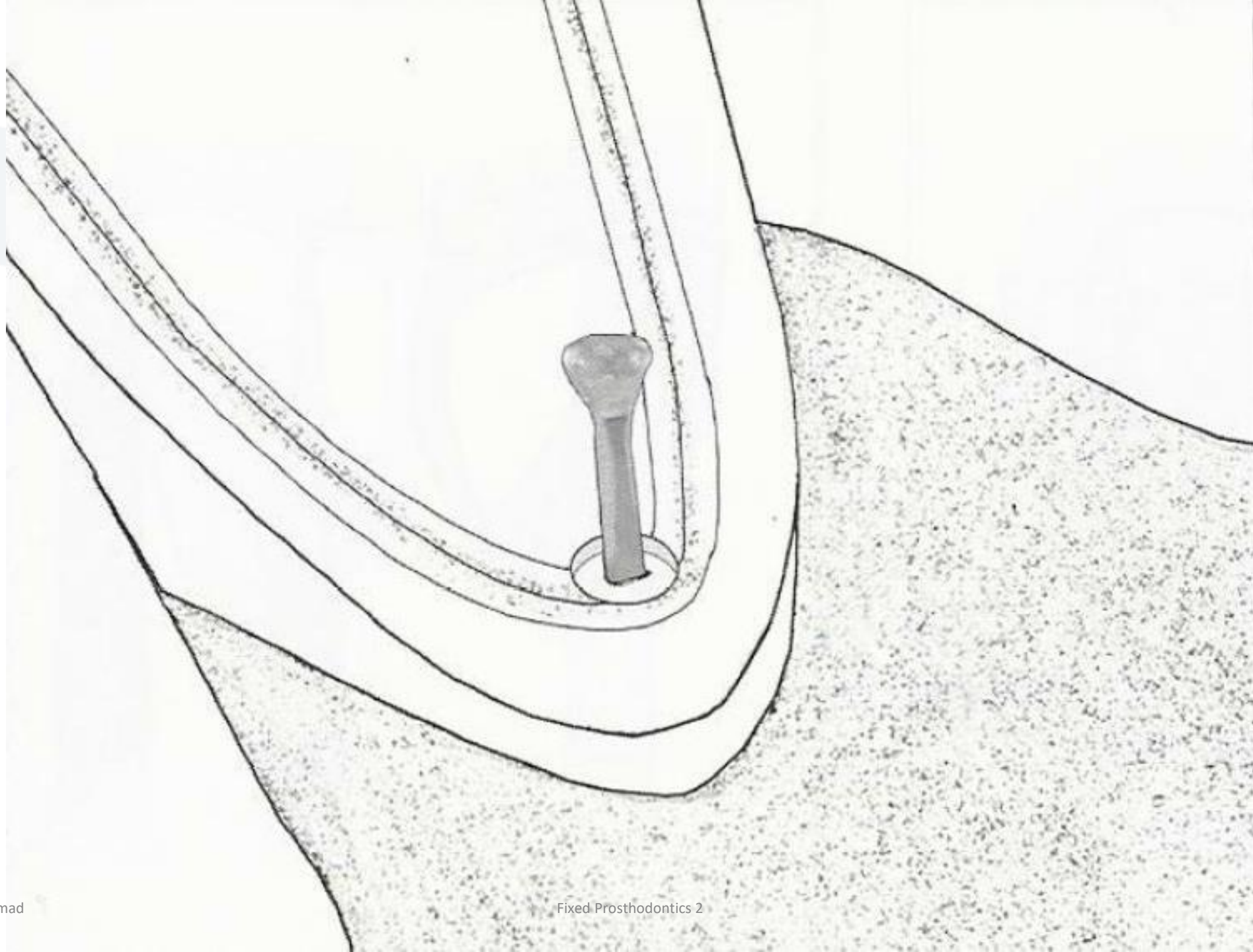


**b**

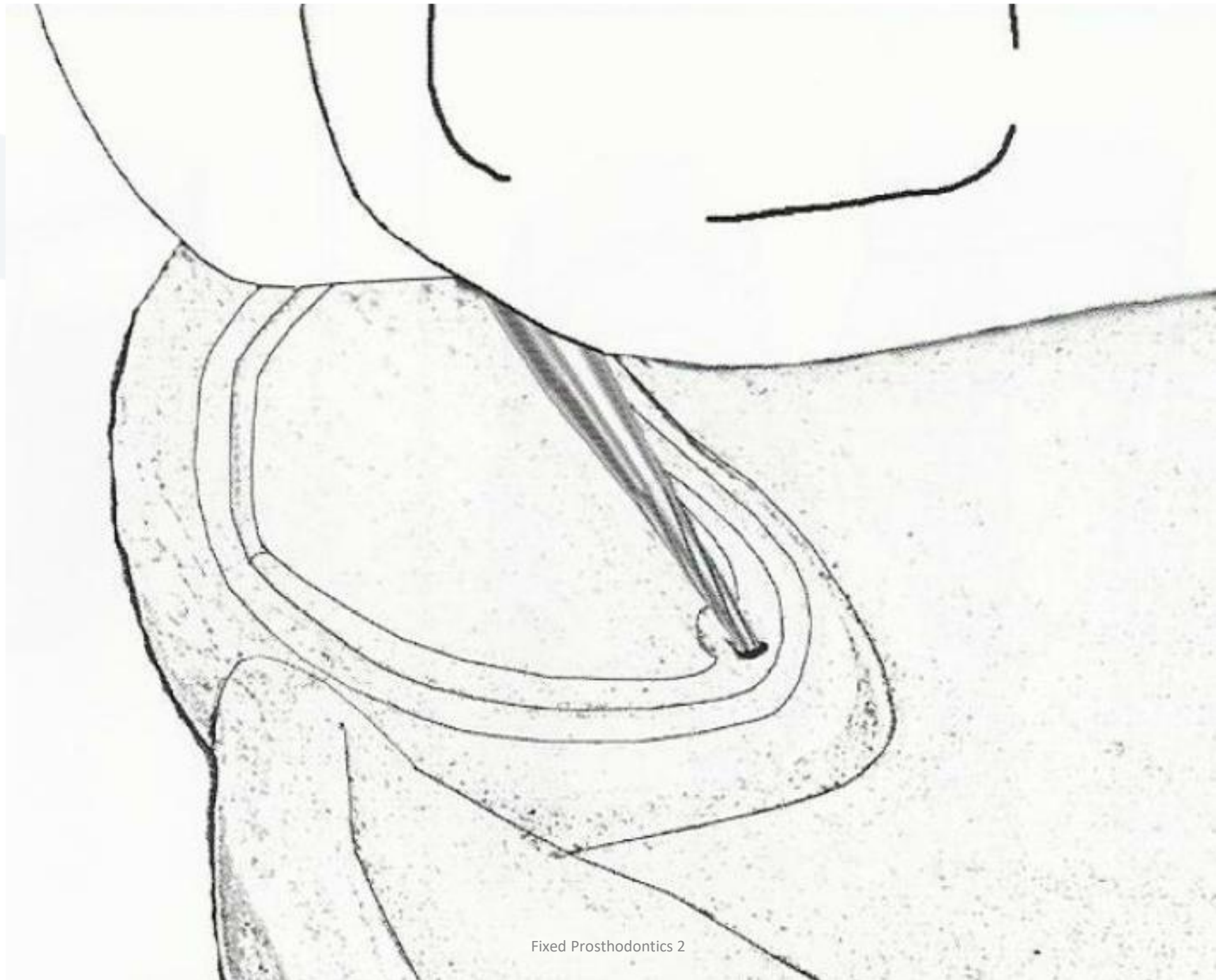


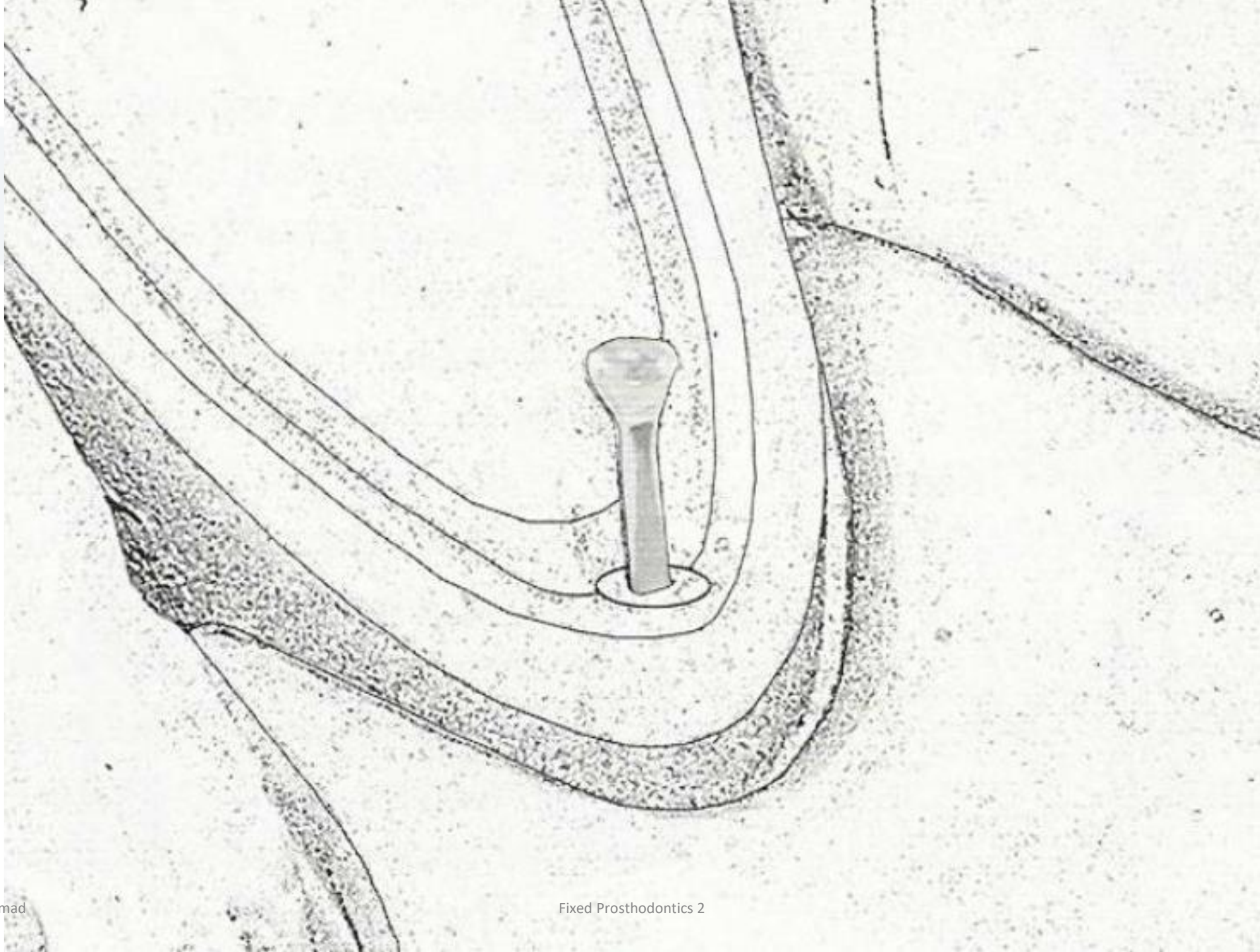
**c**

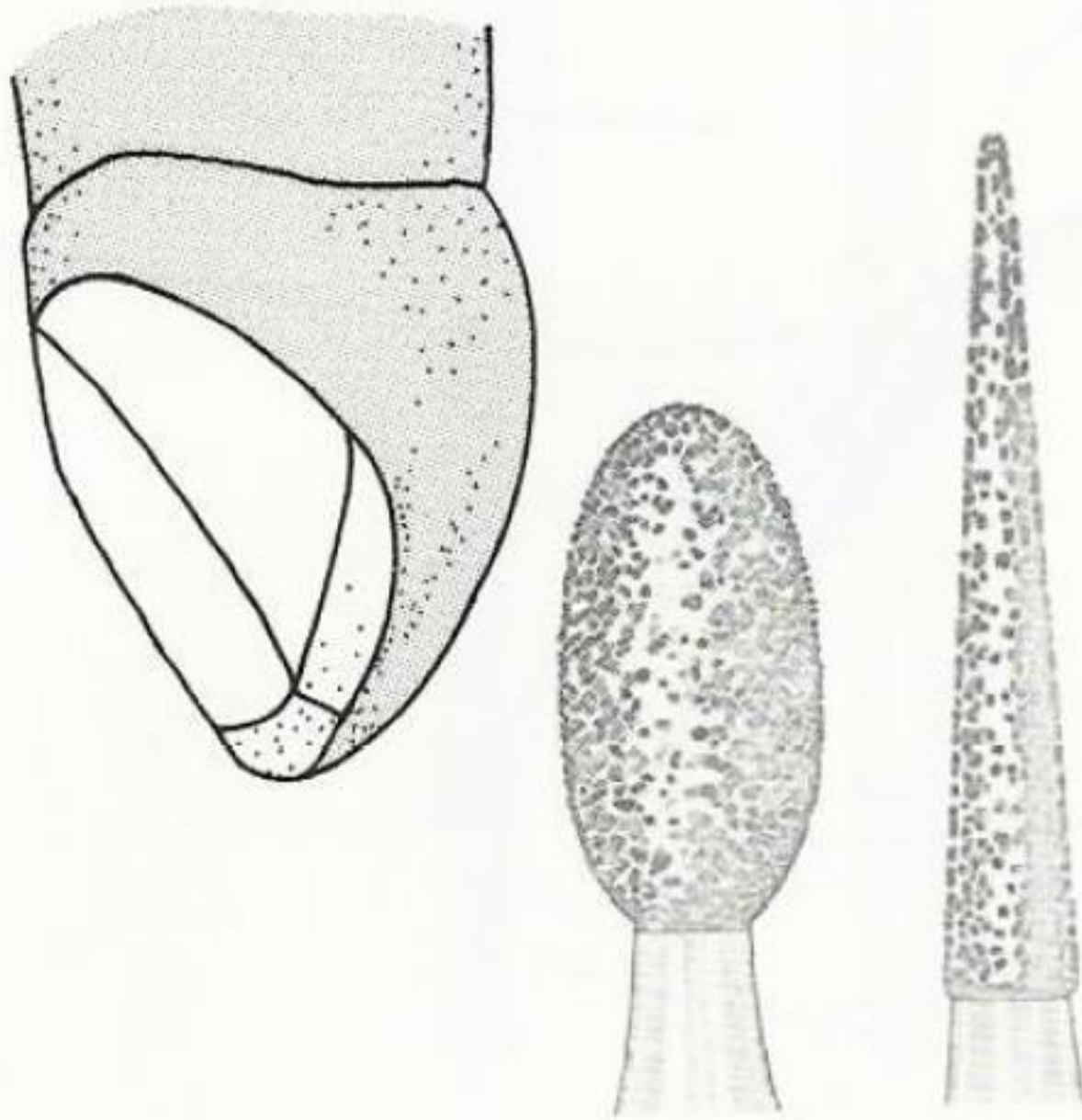


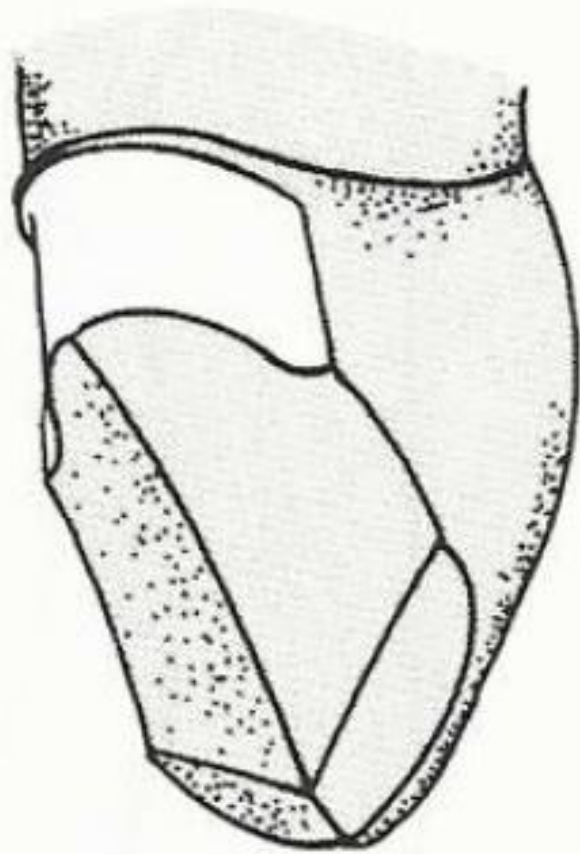




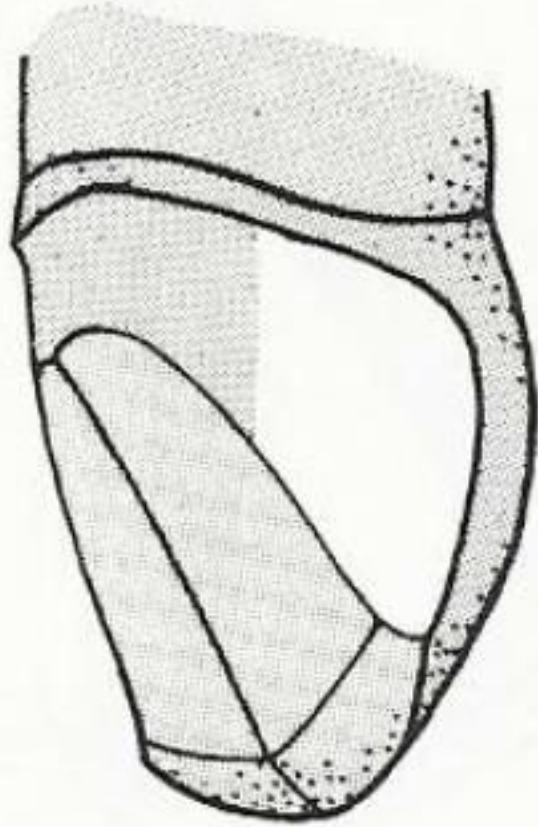


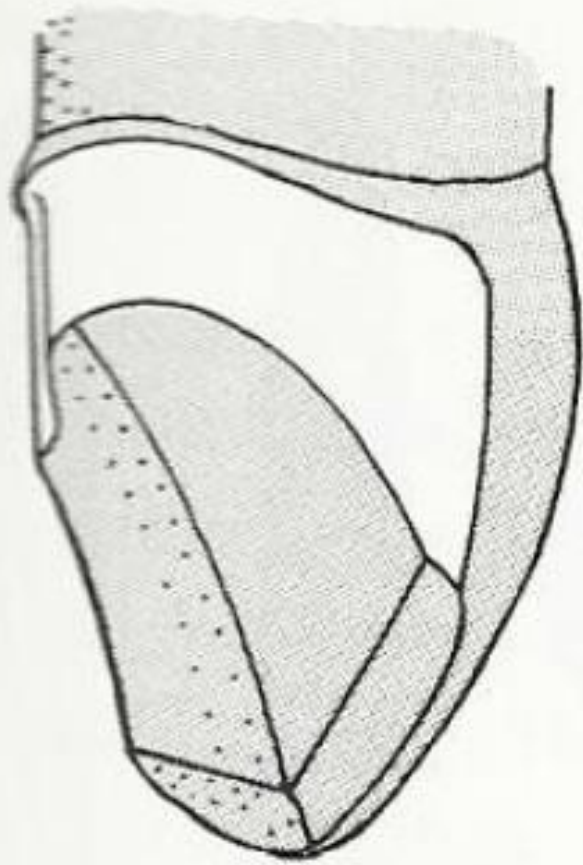


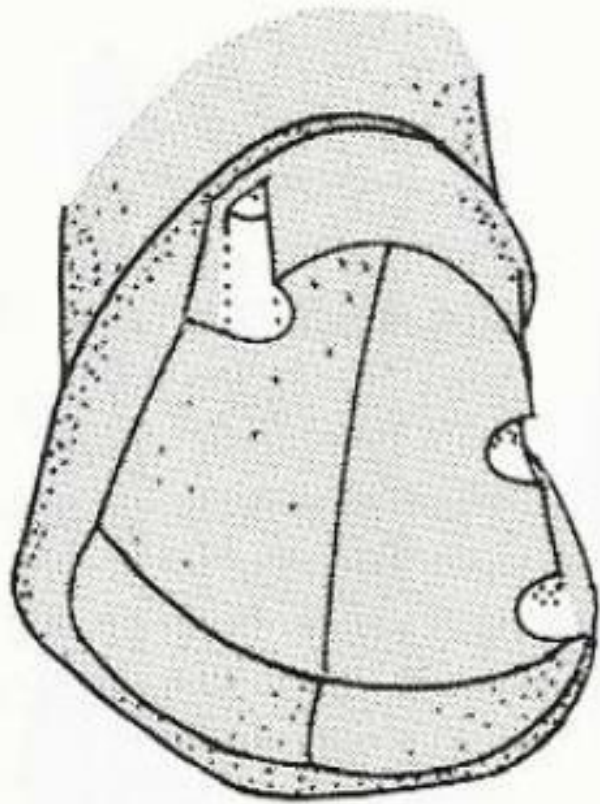


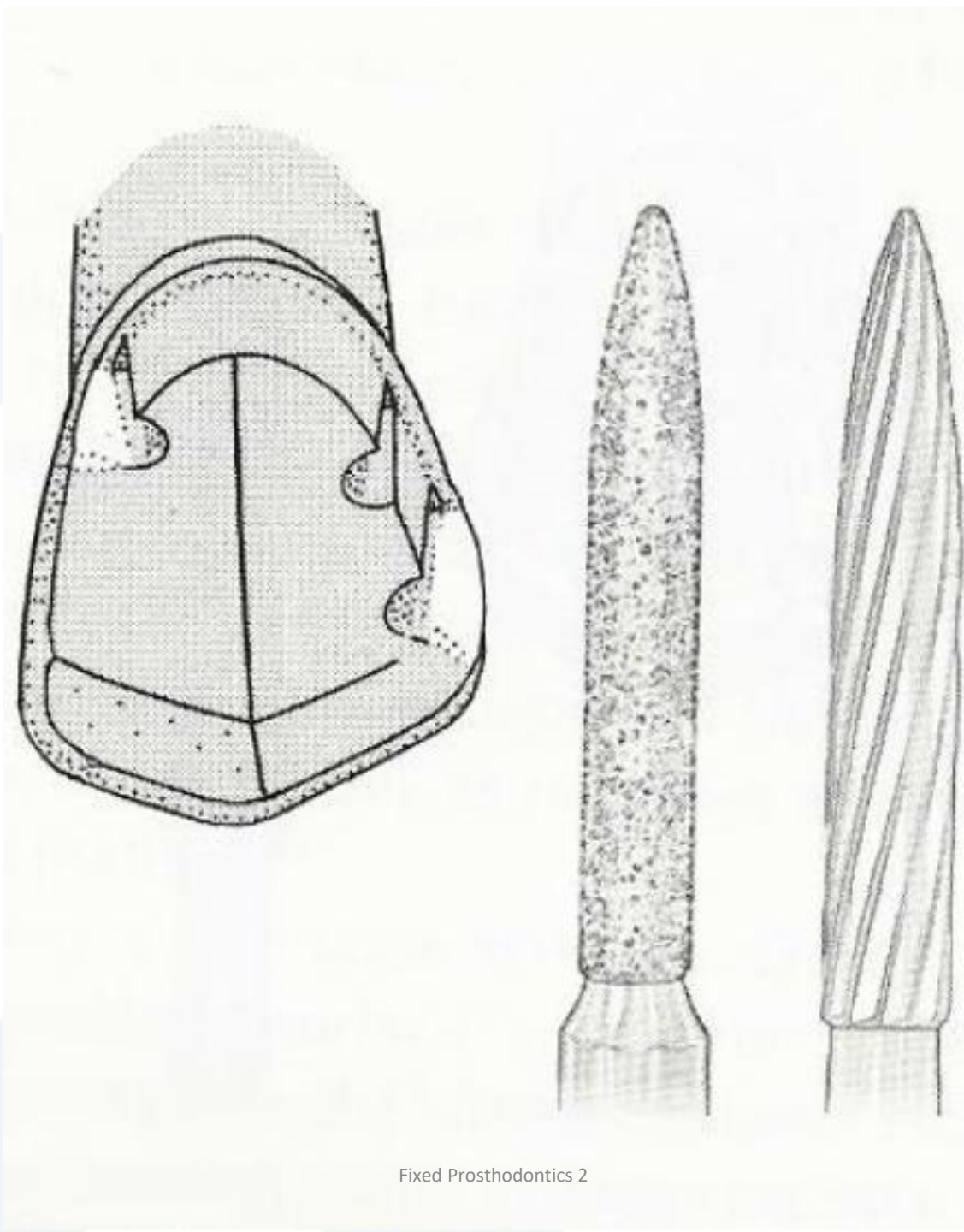




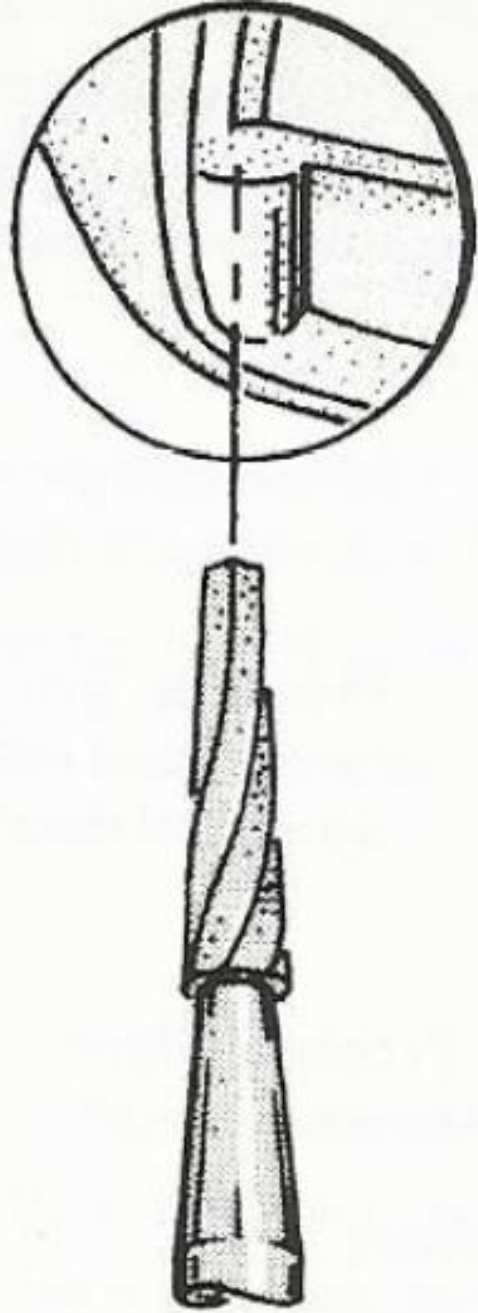




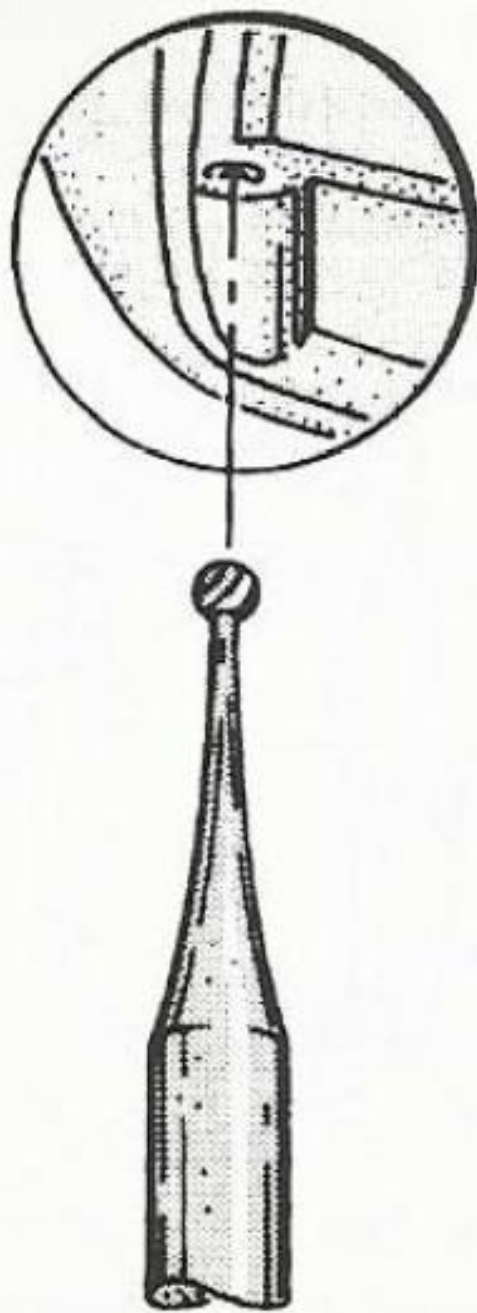




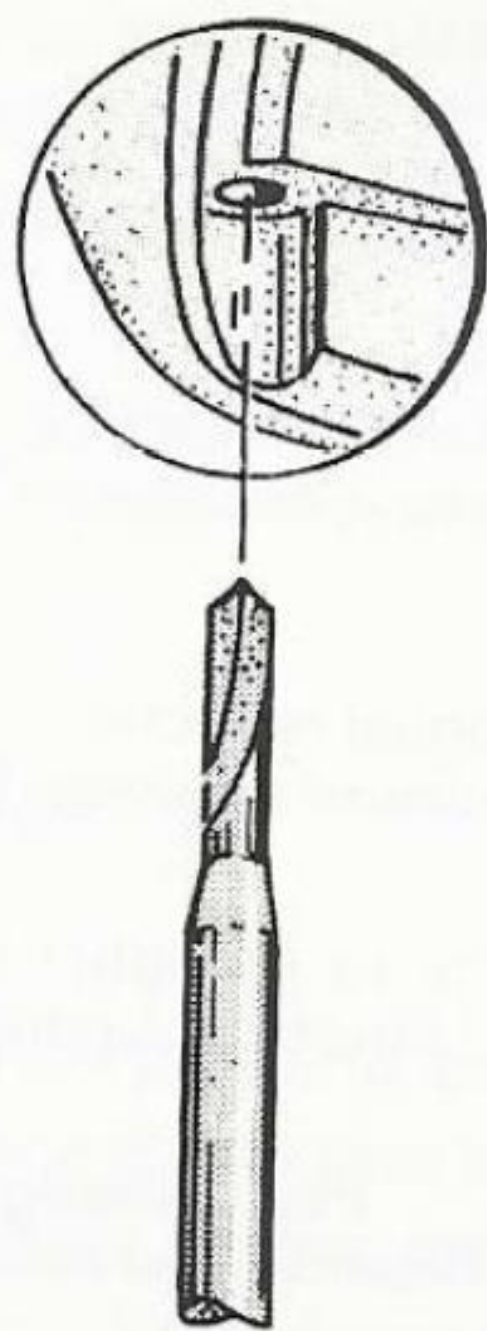




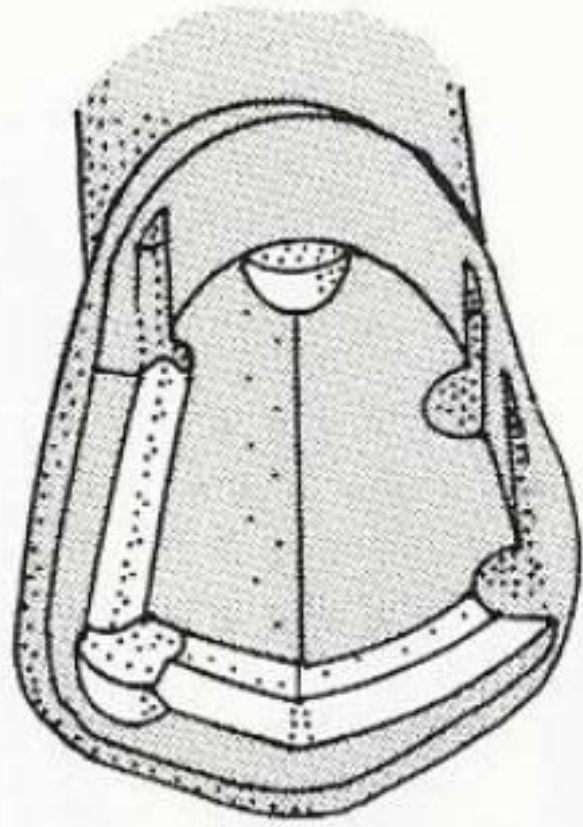
a

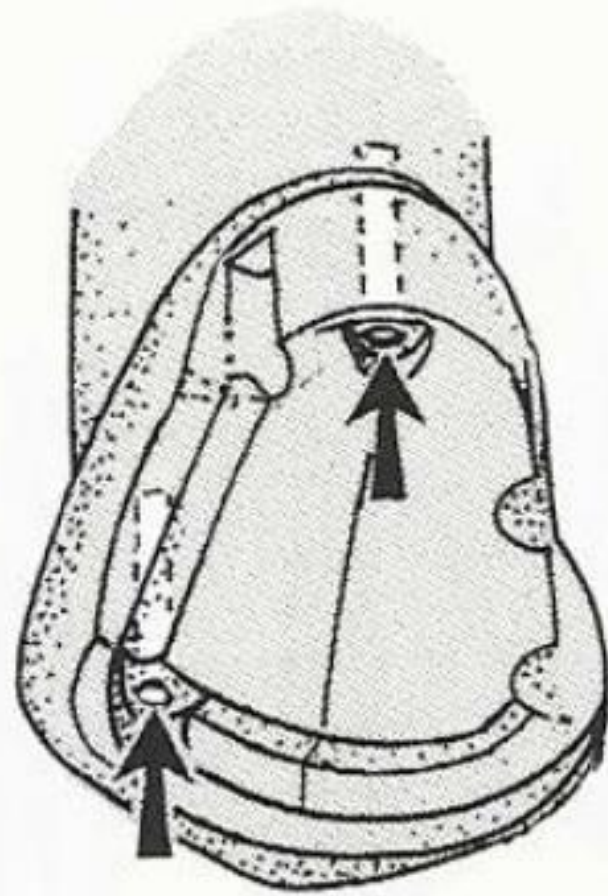


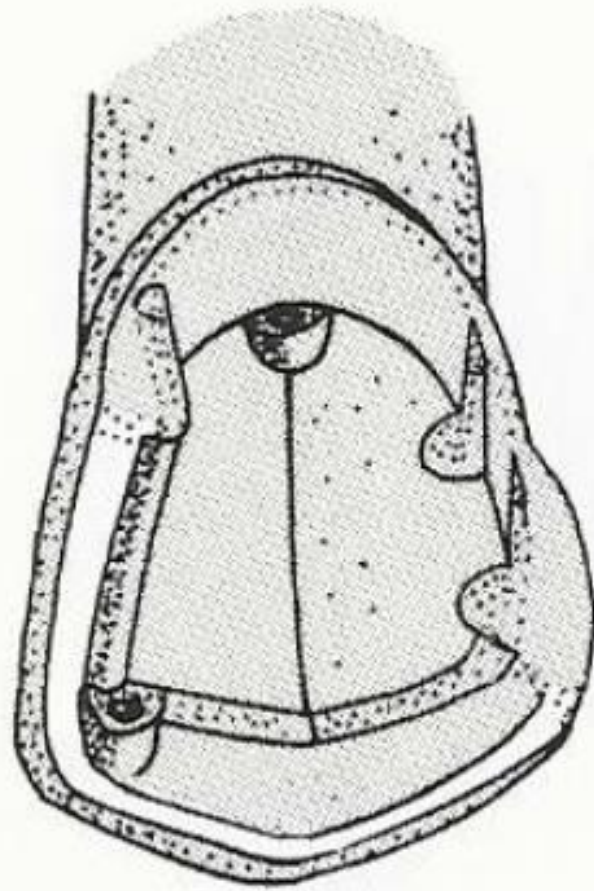
b



c









**Axial reduction**  
Retention and resistance  
Periodontal preservation  
Structural durability

**Proximal groove**  
Retention and resistance  
Structural durability

**Lingual reduction**  
Structural durability

**Trough**  
Structural durability

**Pinhole/ledge**  
Retention and resistance

**Chamfer**  
Marginal integrity  
Periodontal preservation

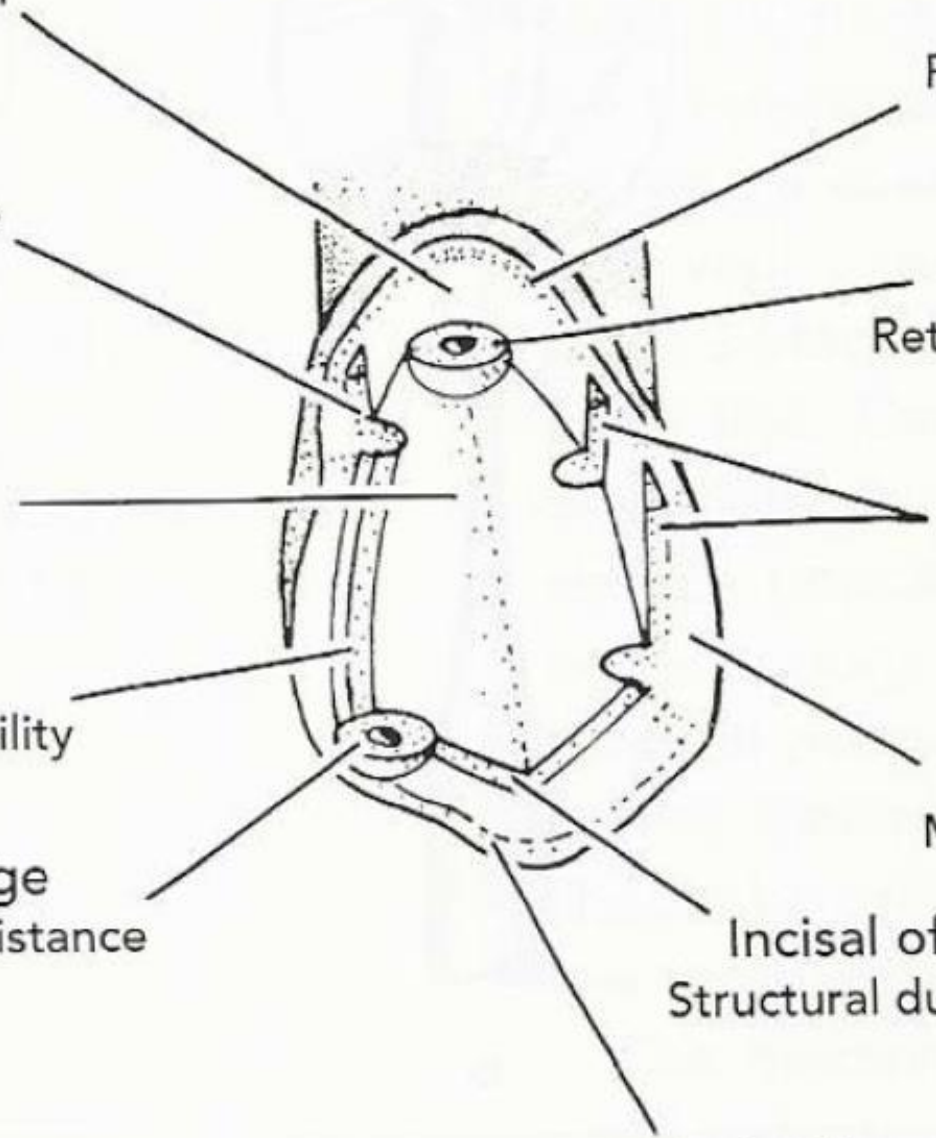
**Pinhole/ledge**  
Retention and resistance

**Proximal grooves**  
Retention and resistance  
Structural durability

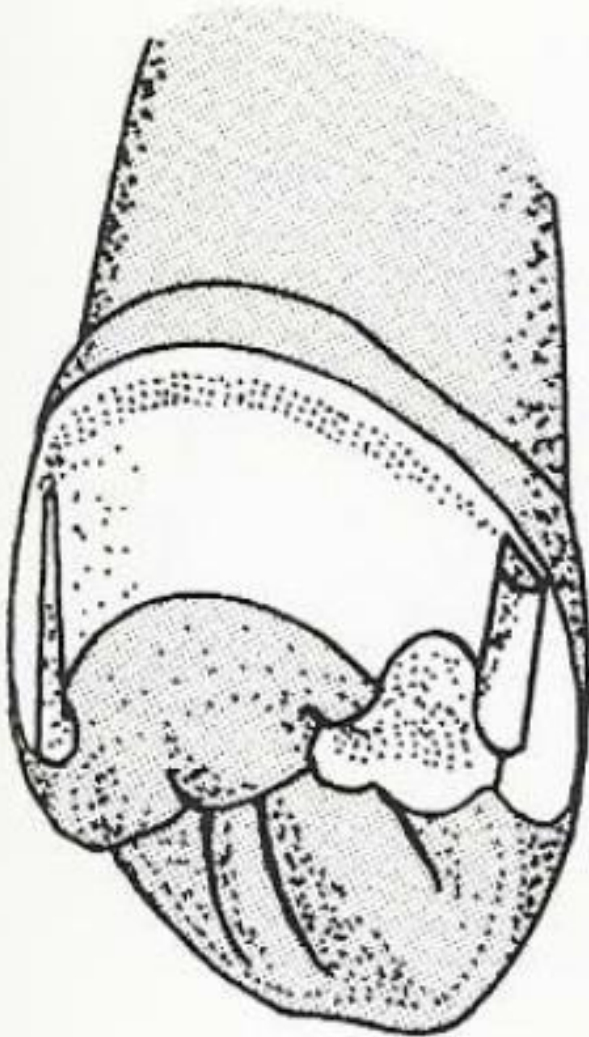
**Proximal flare**  
Marginal integrity

**Incisal offset**  
Structural durability

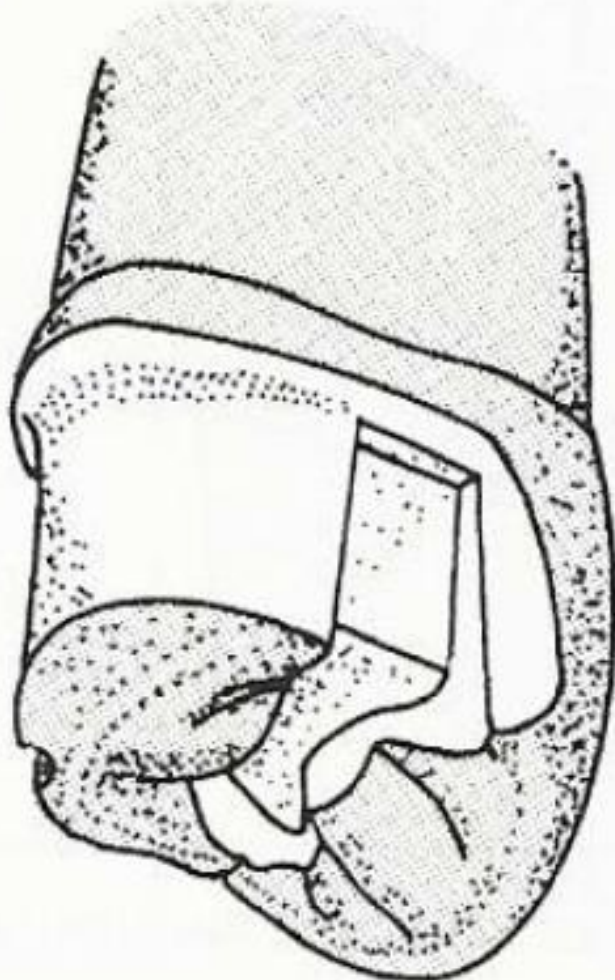
**Incisal bevel**  
Marginal integrity



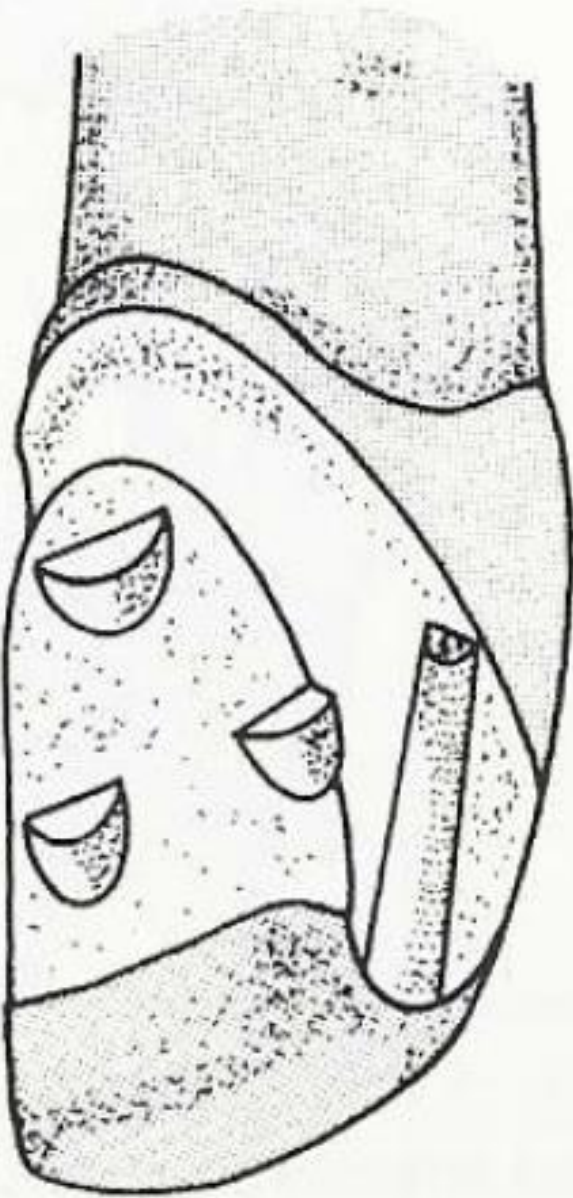


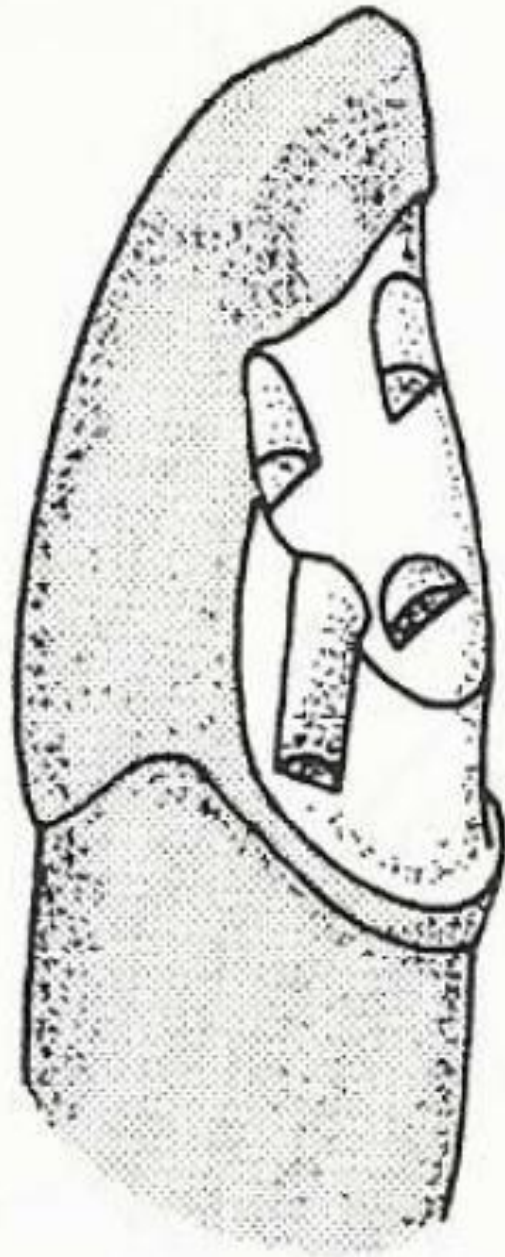
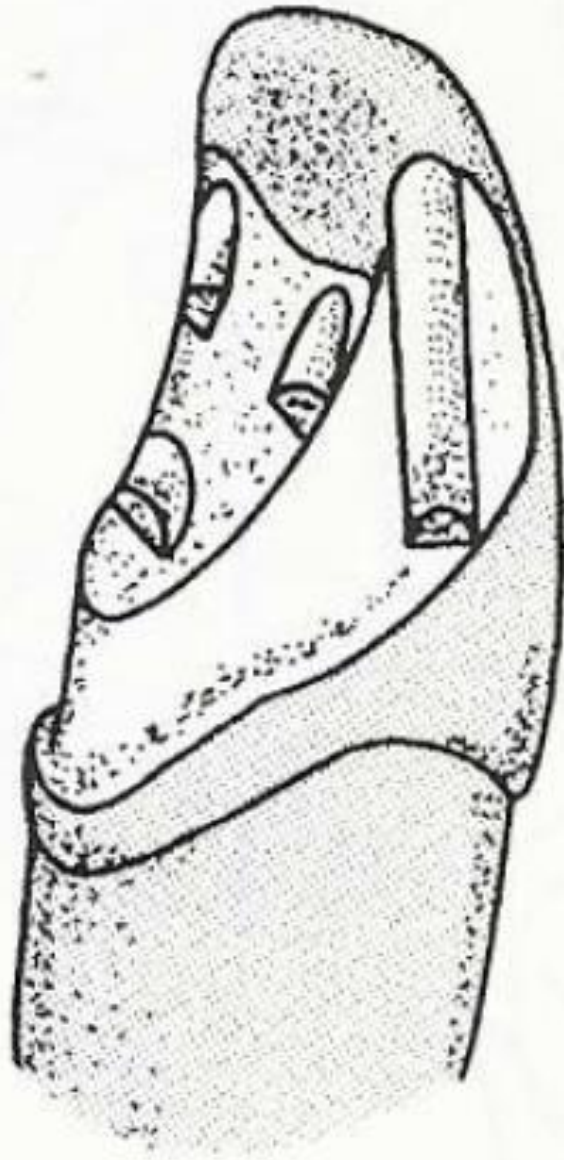


**a**

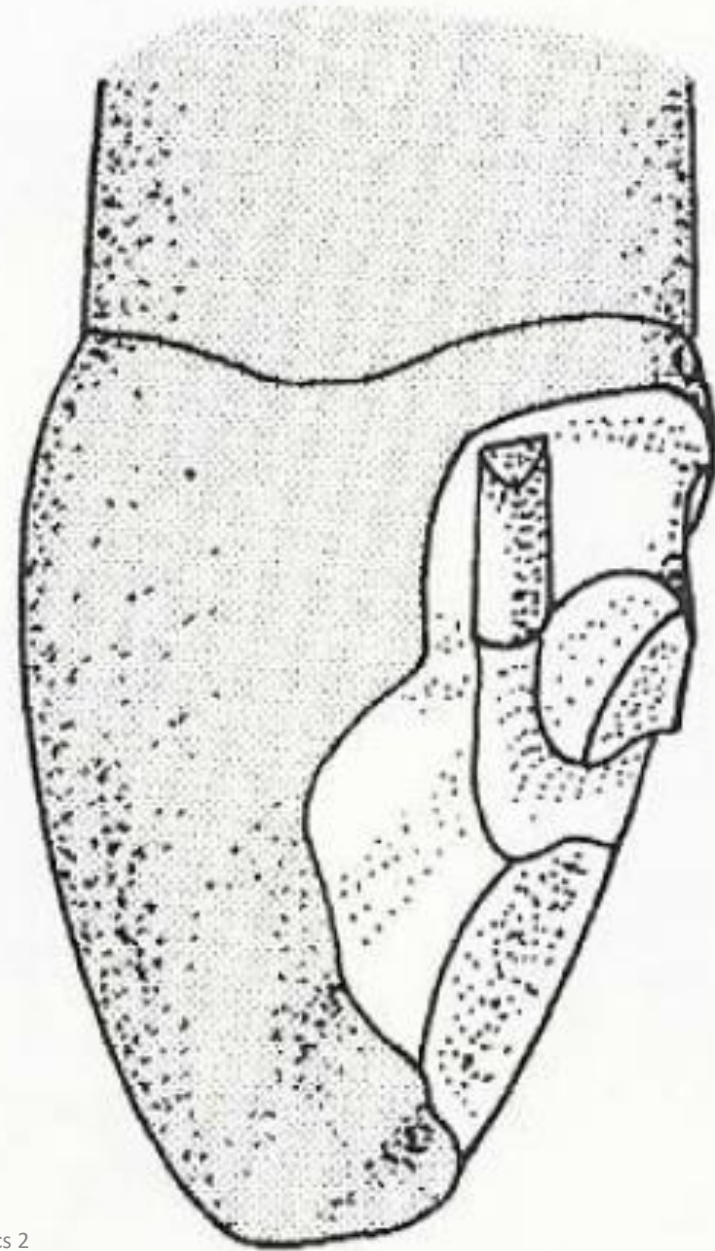
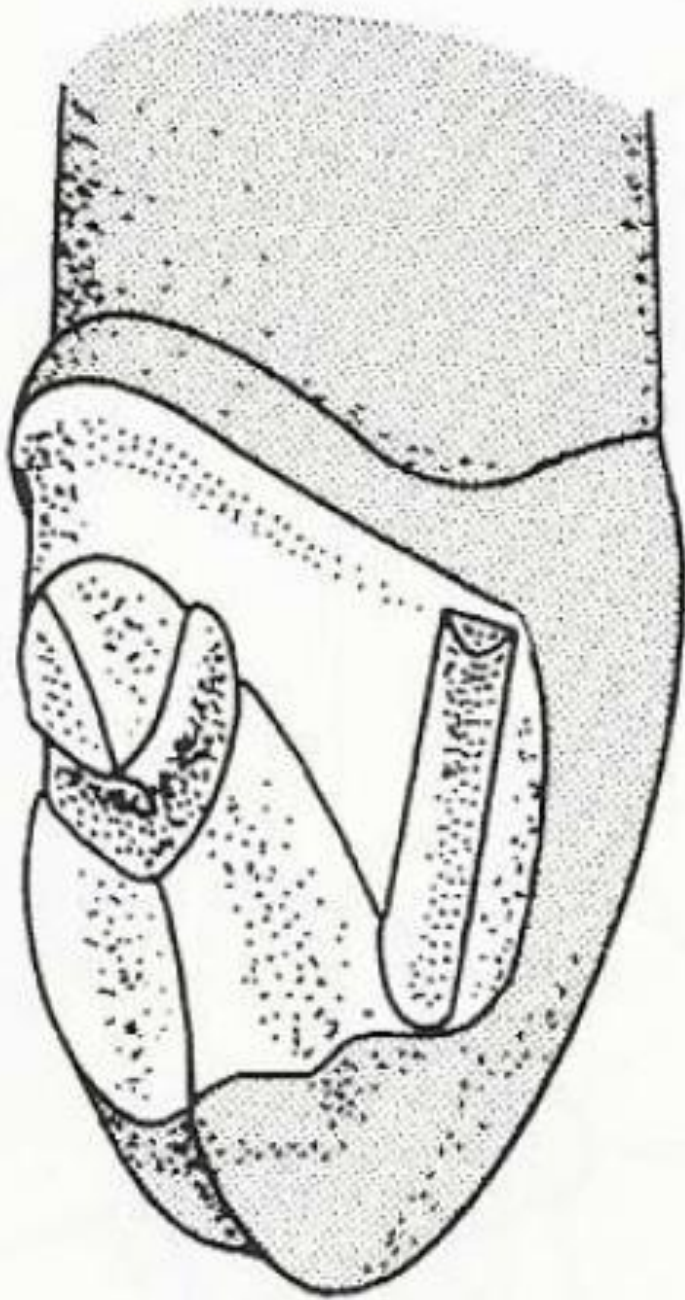


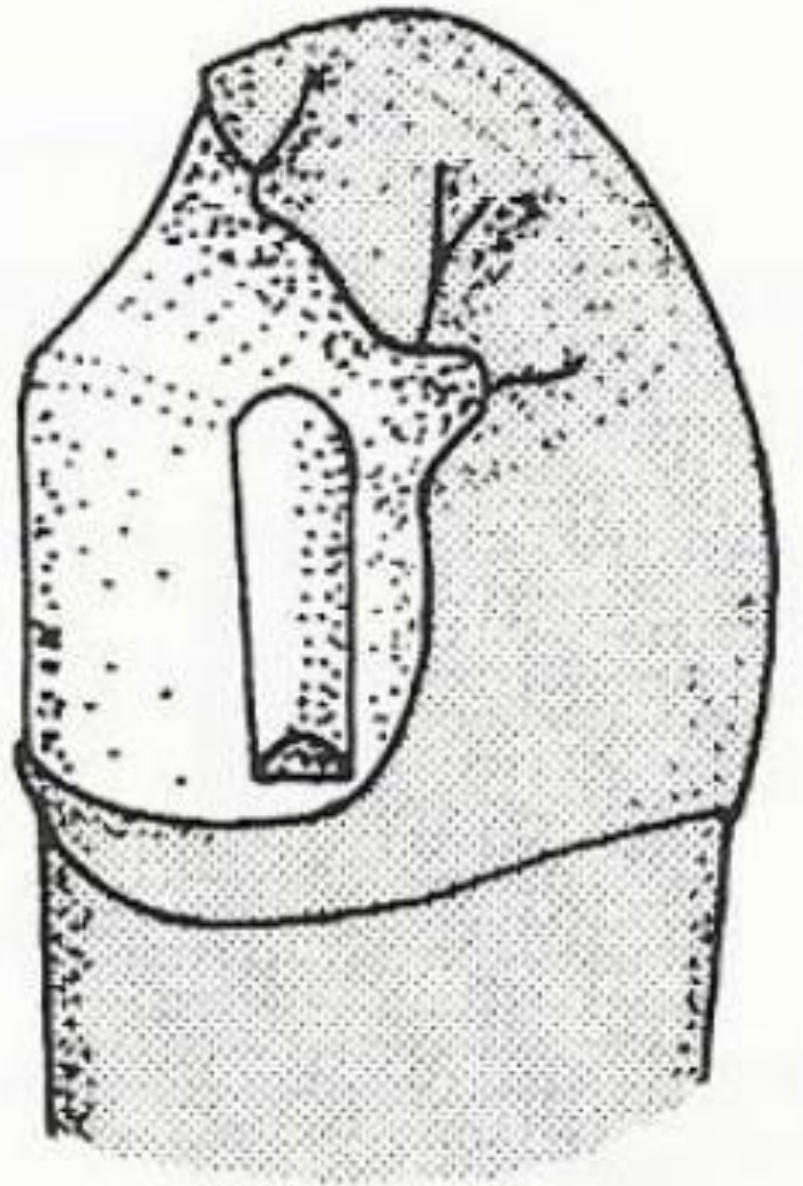
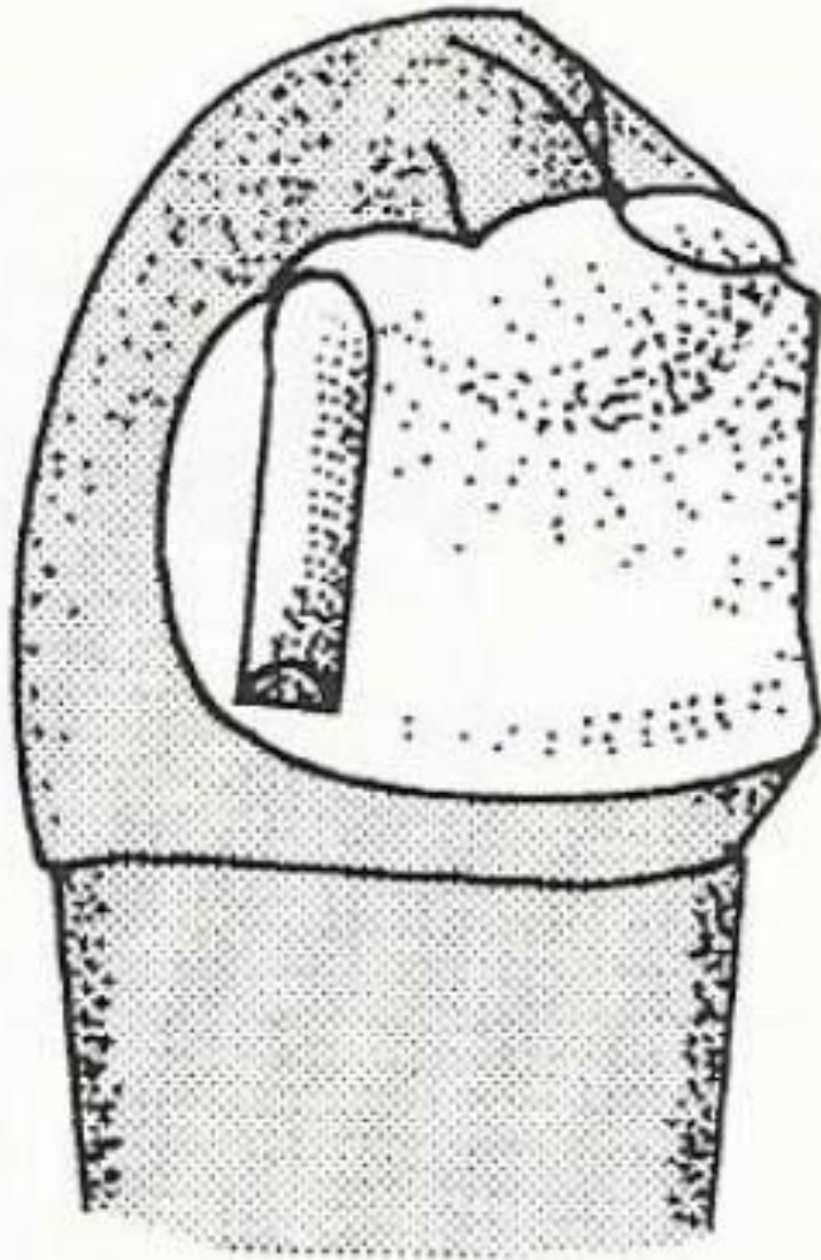
**b**



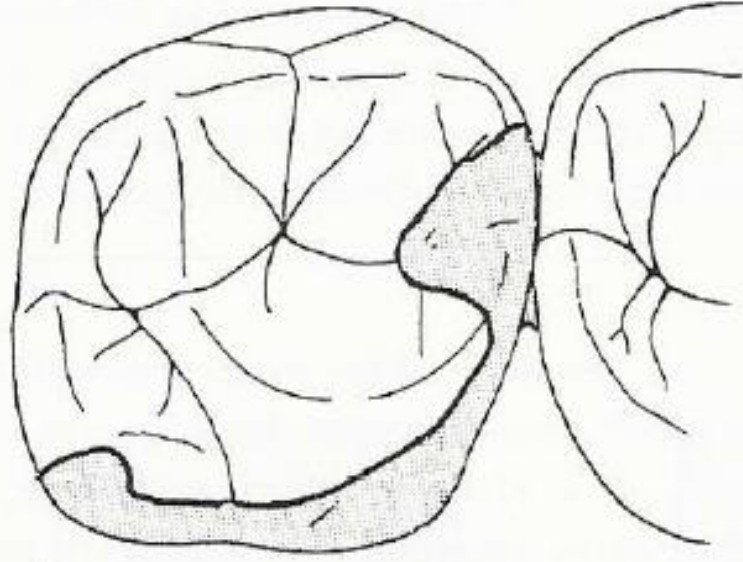




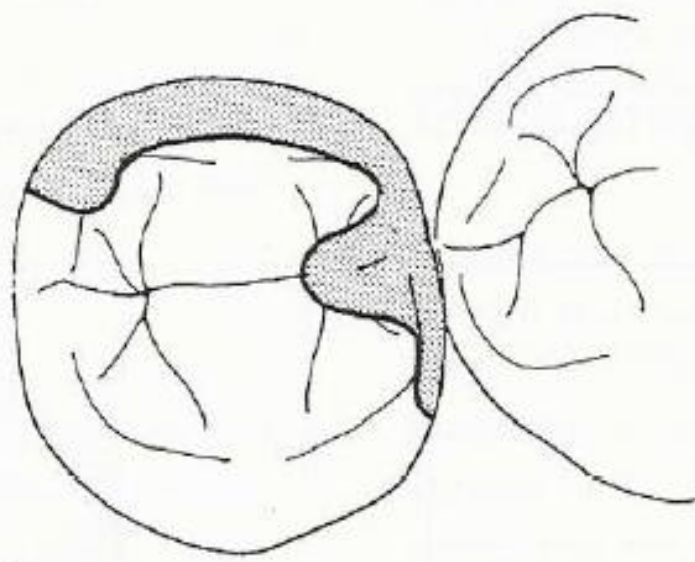




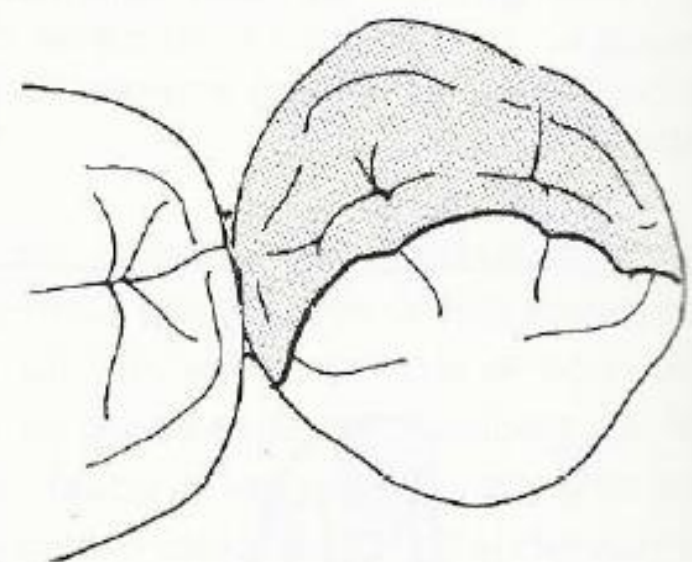




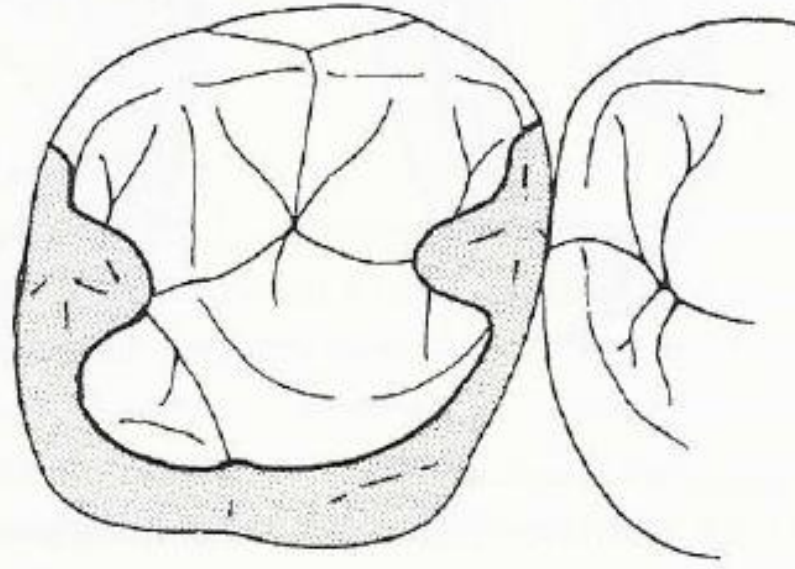
a



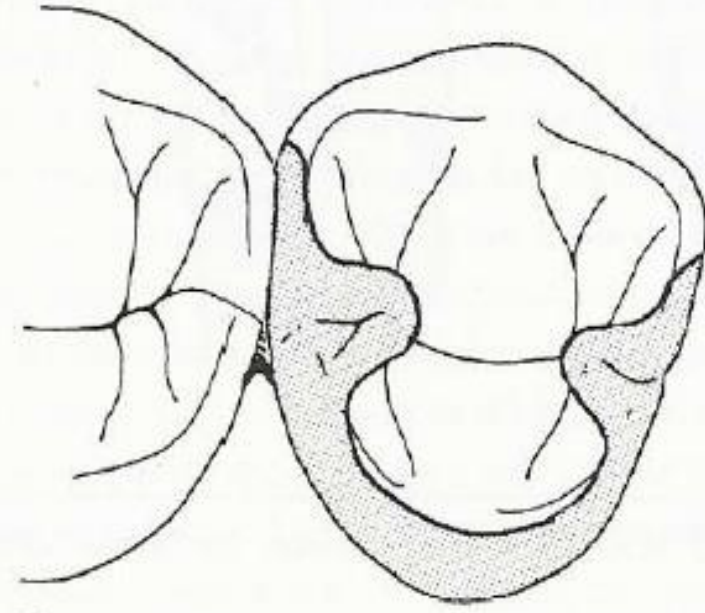
b



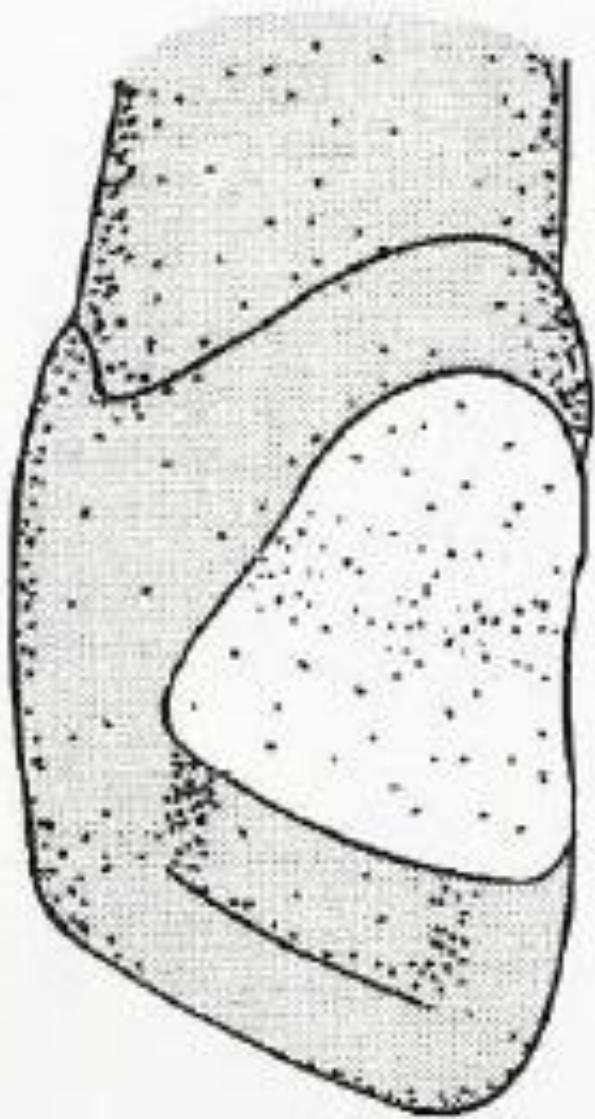
c

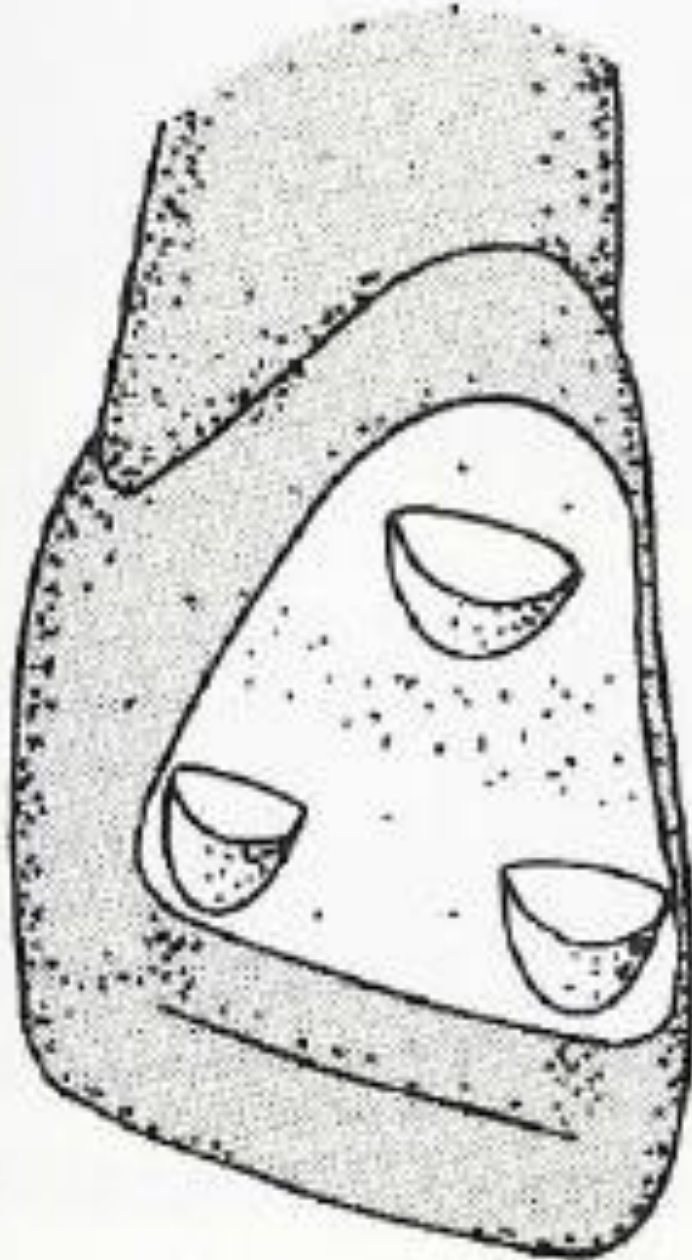


d

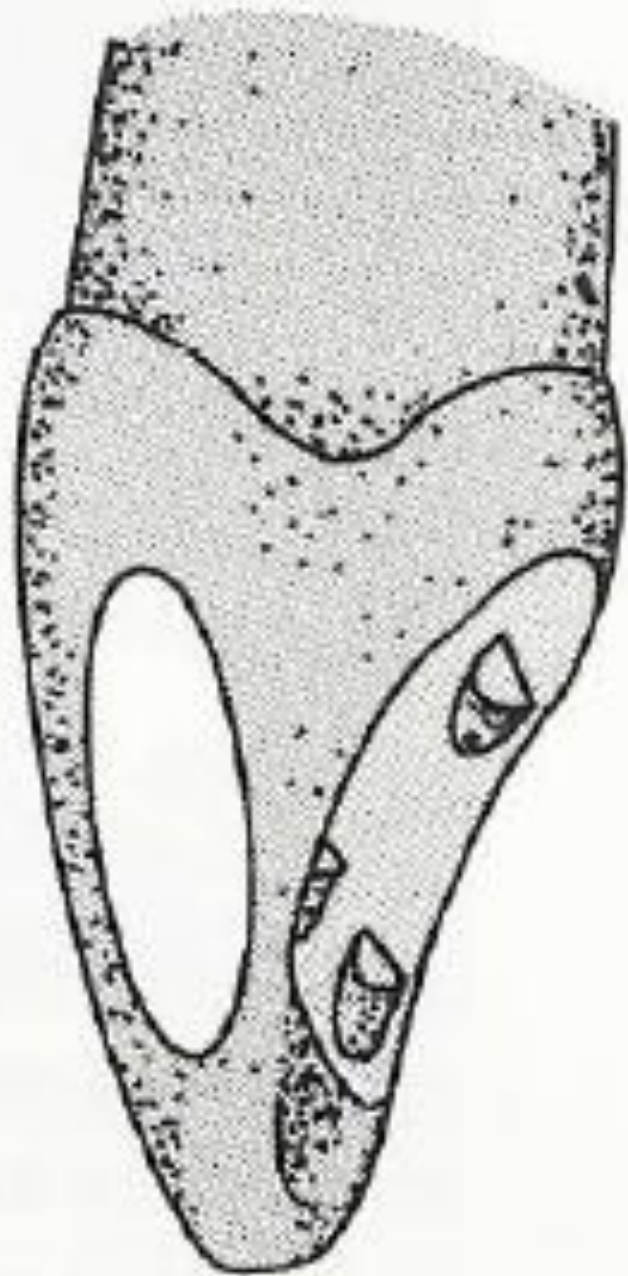


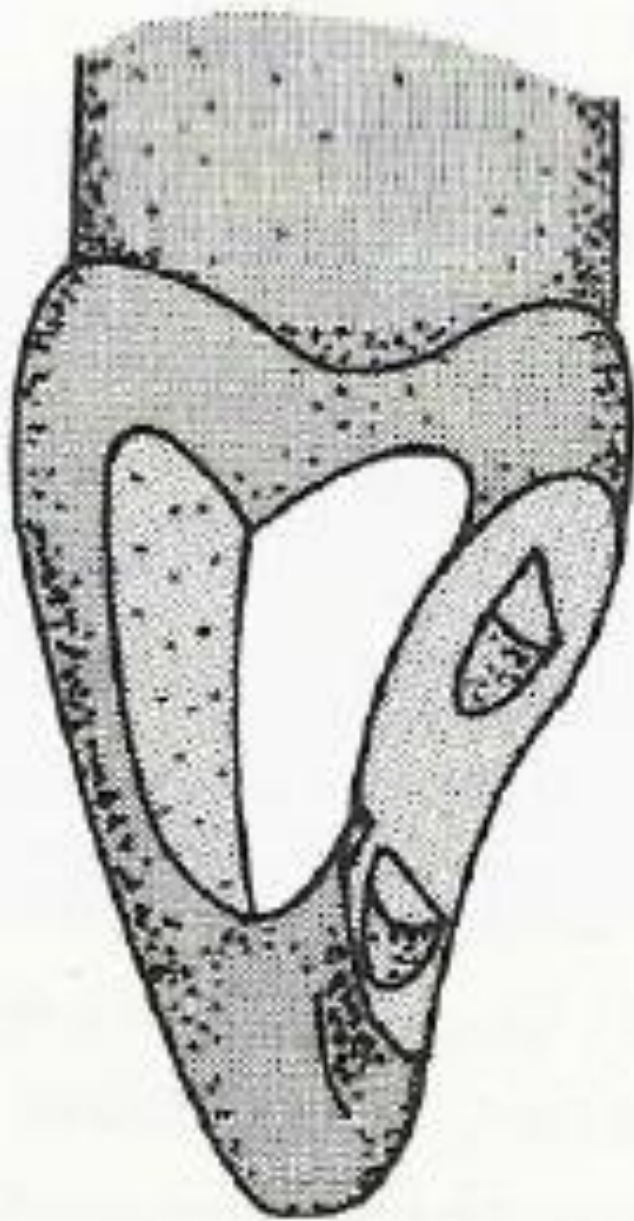
e



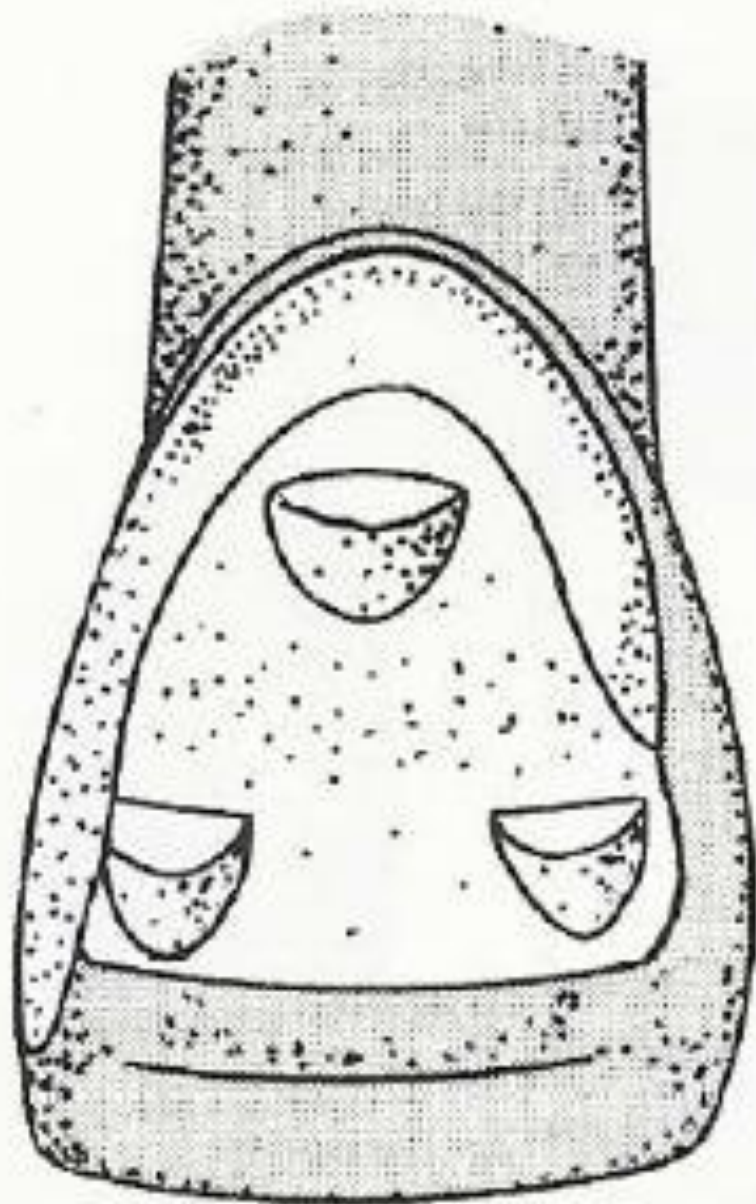


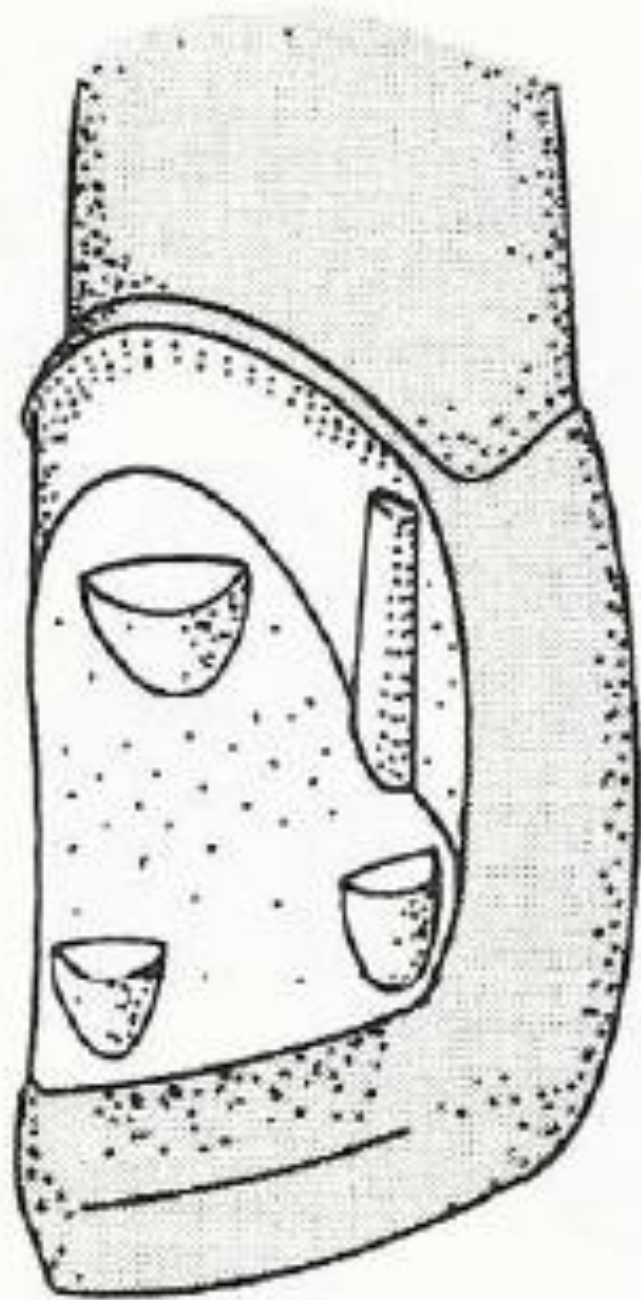


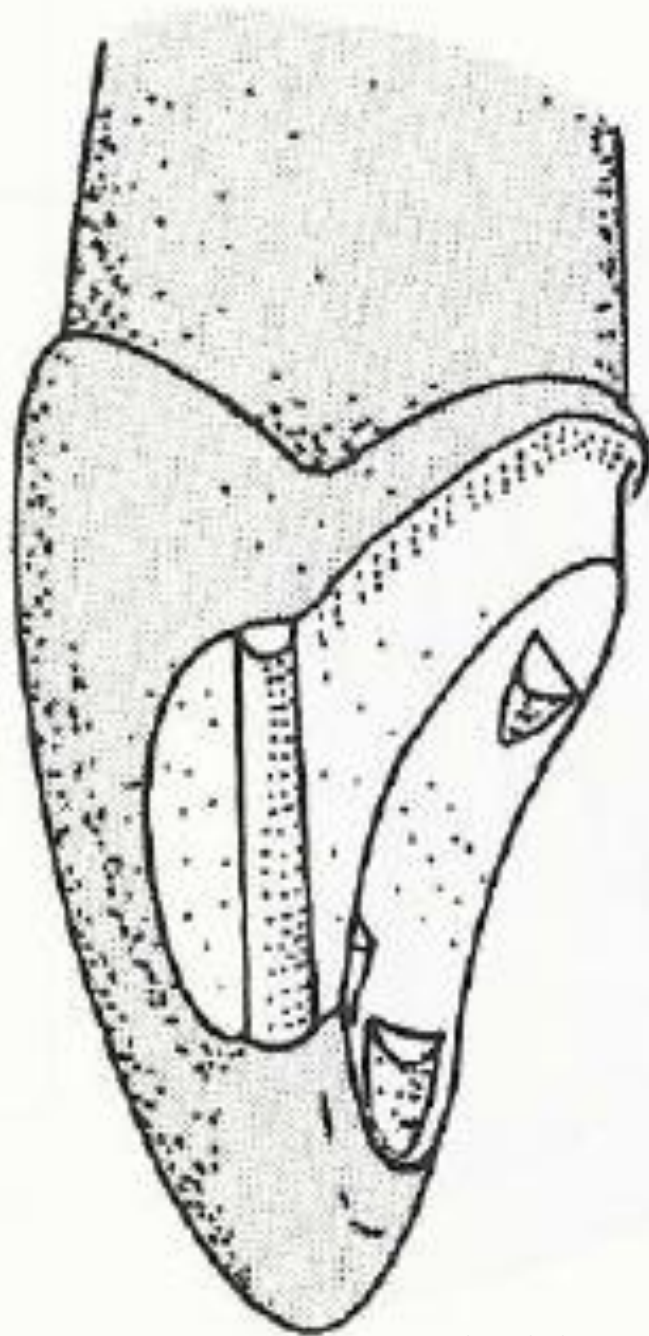




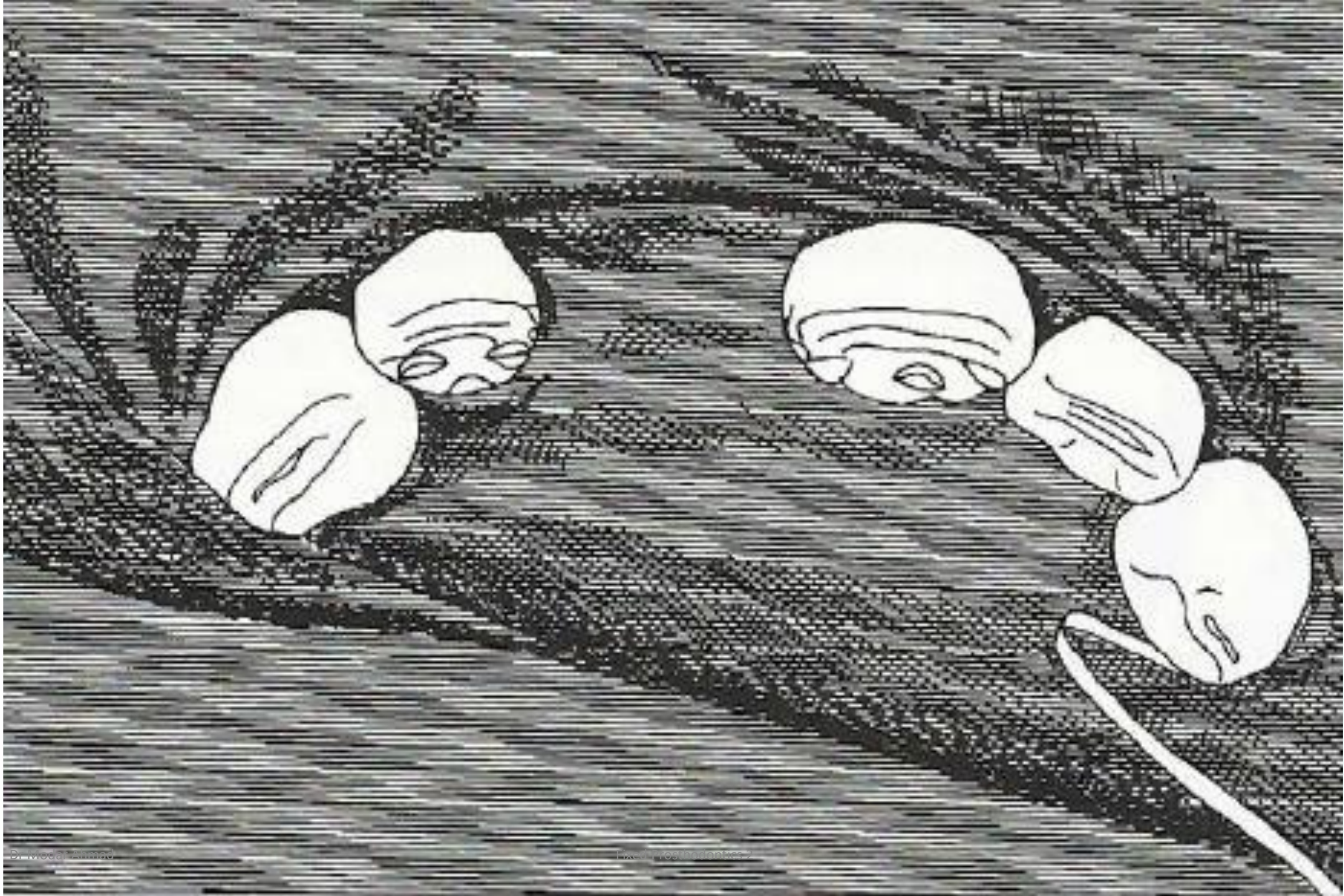




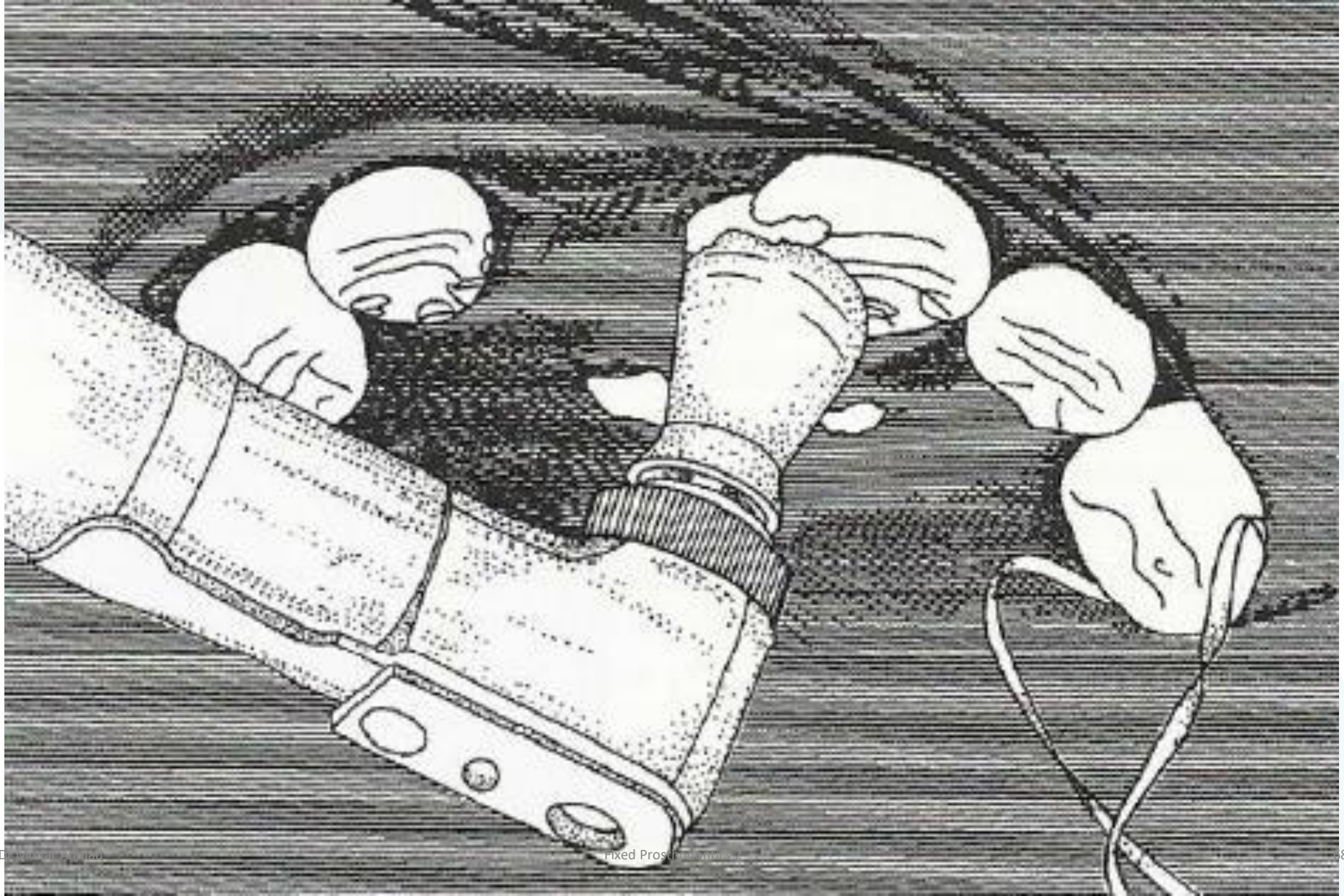




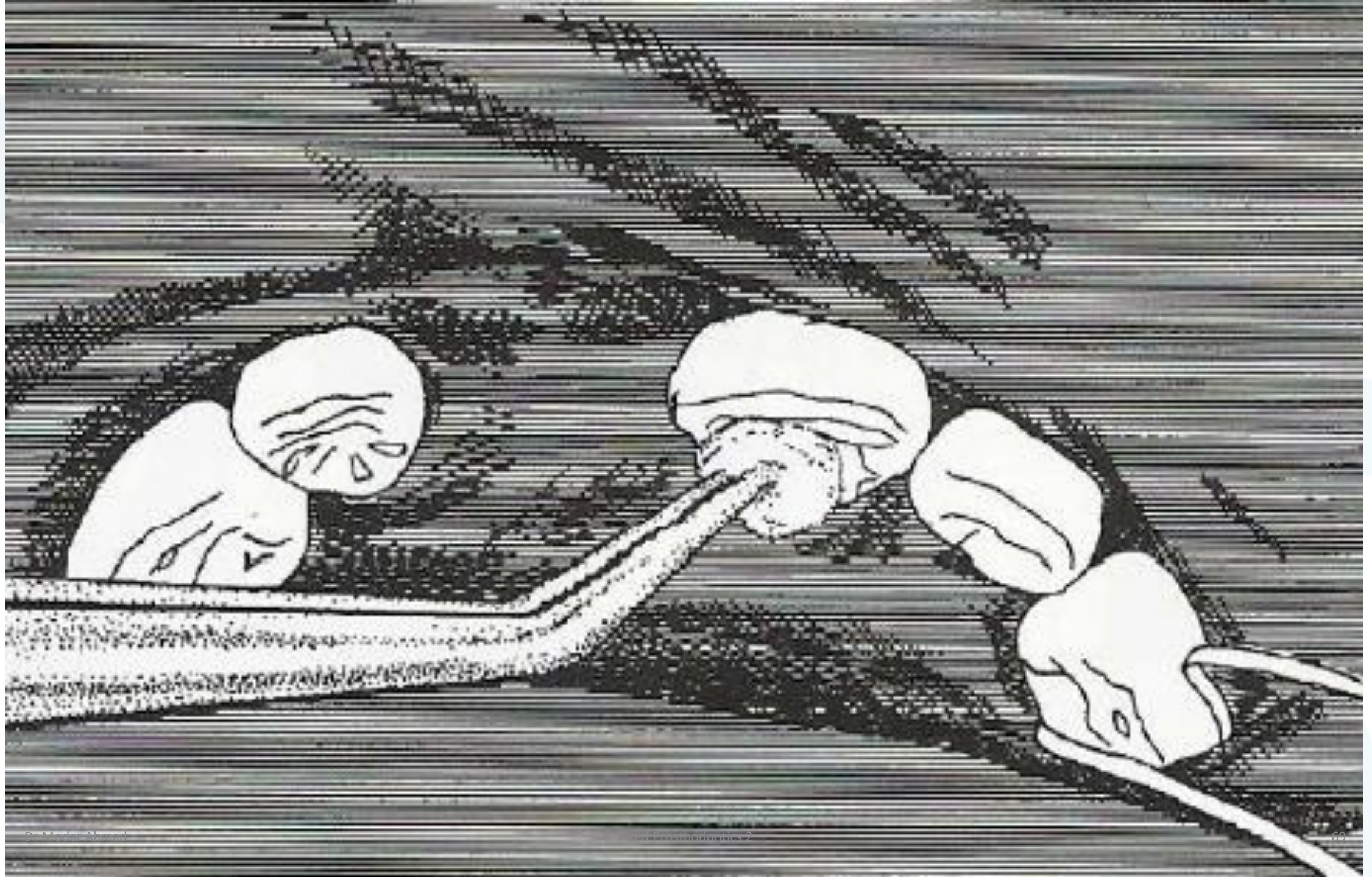








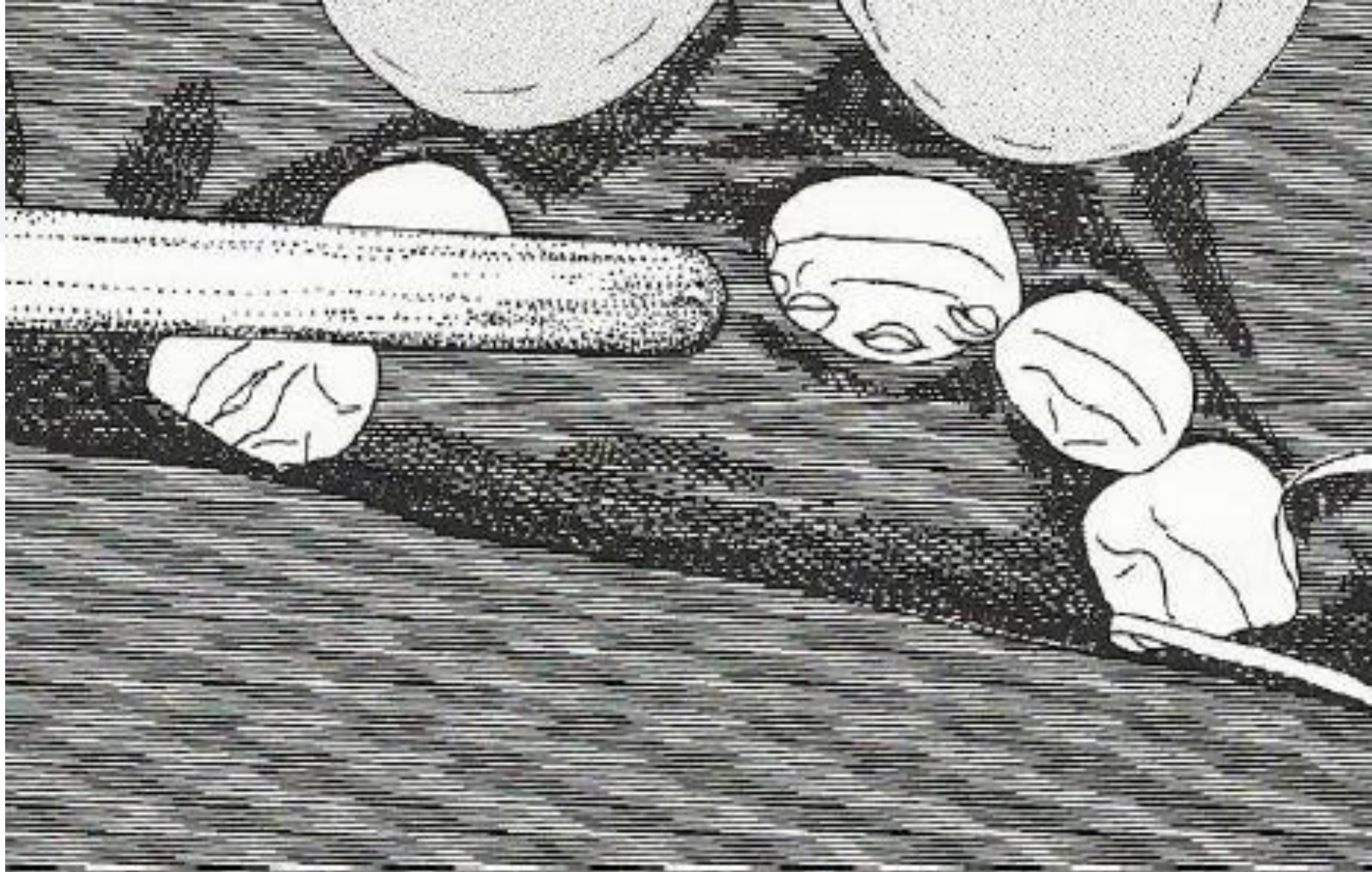




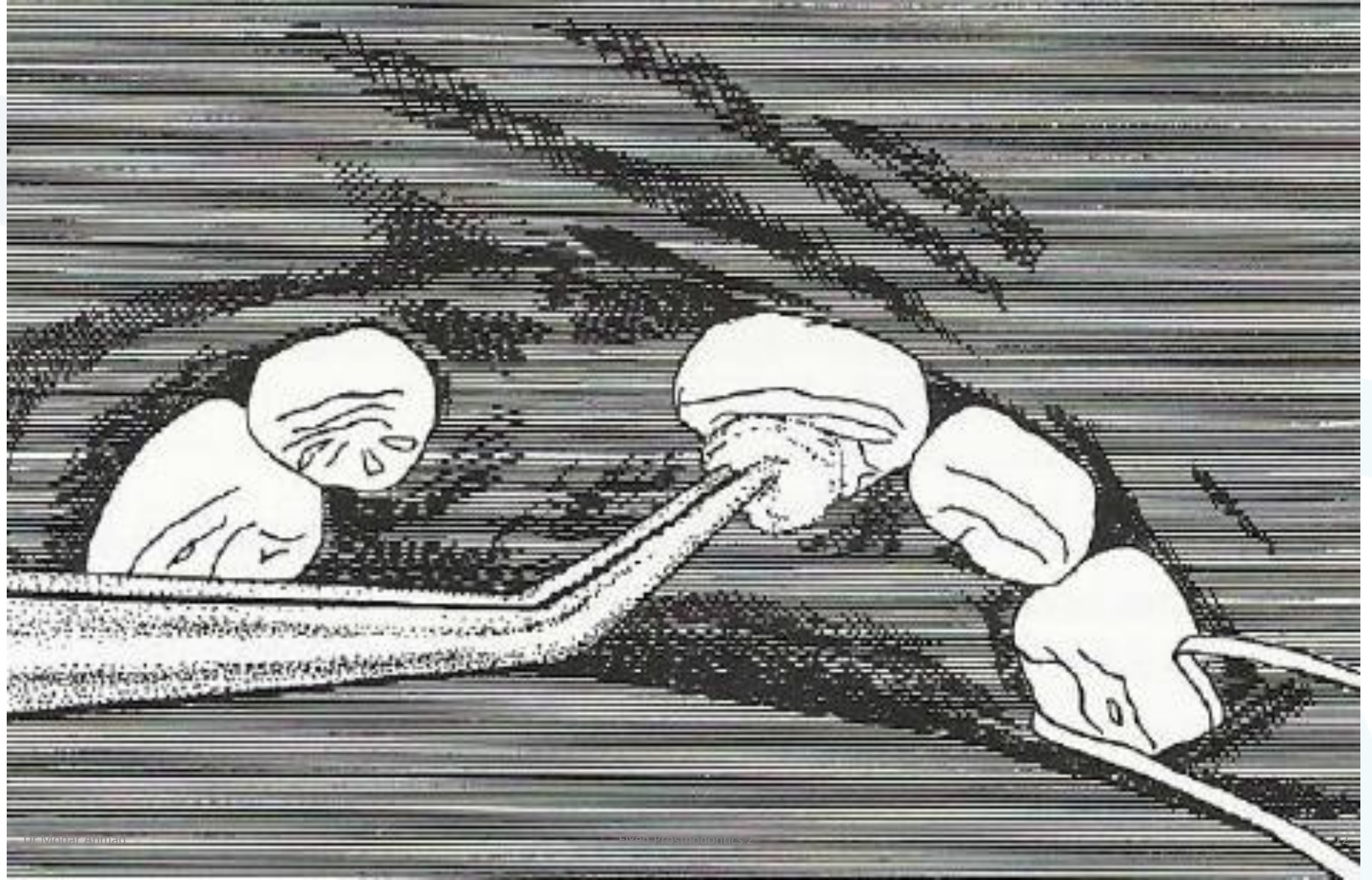




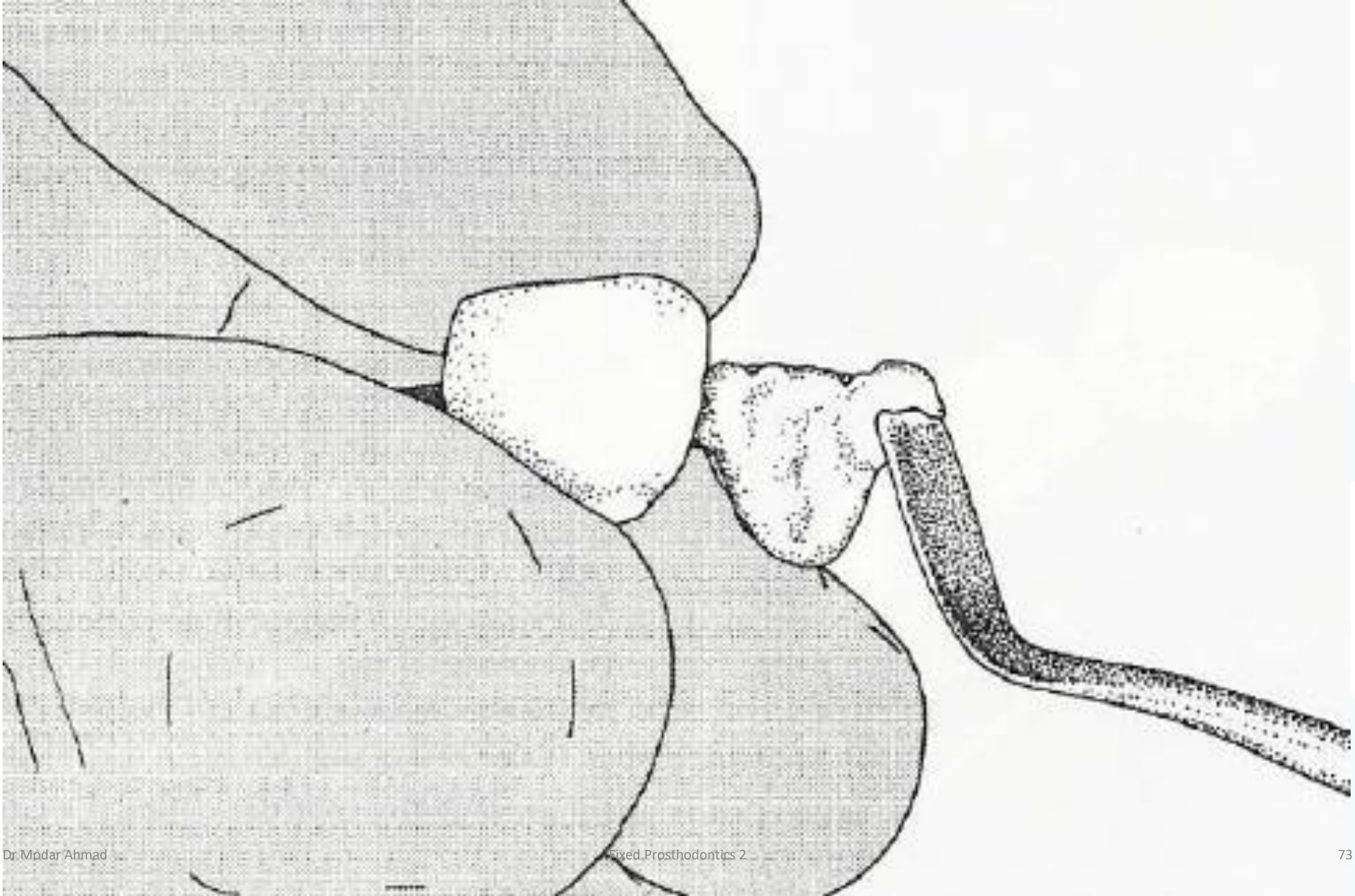


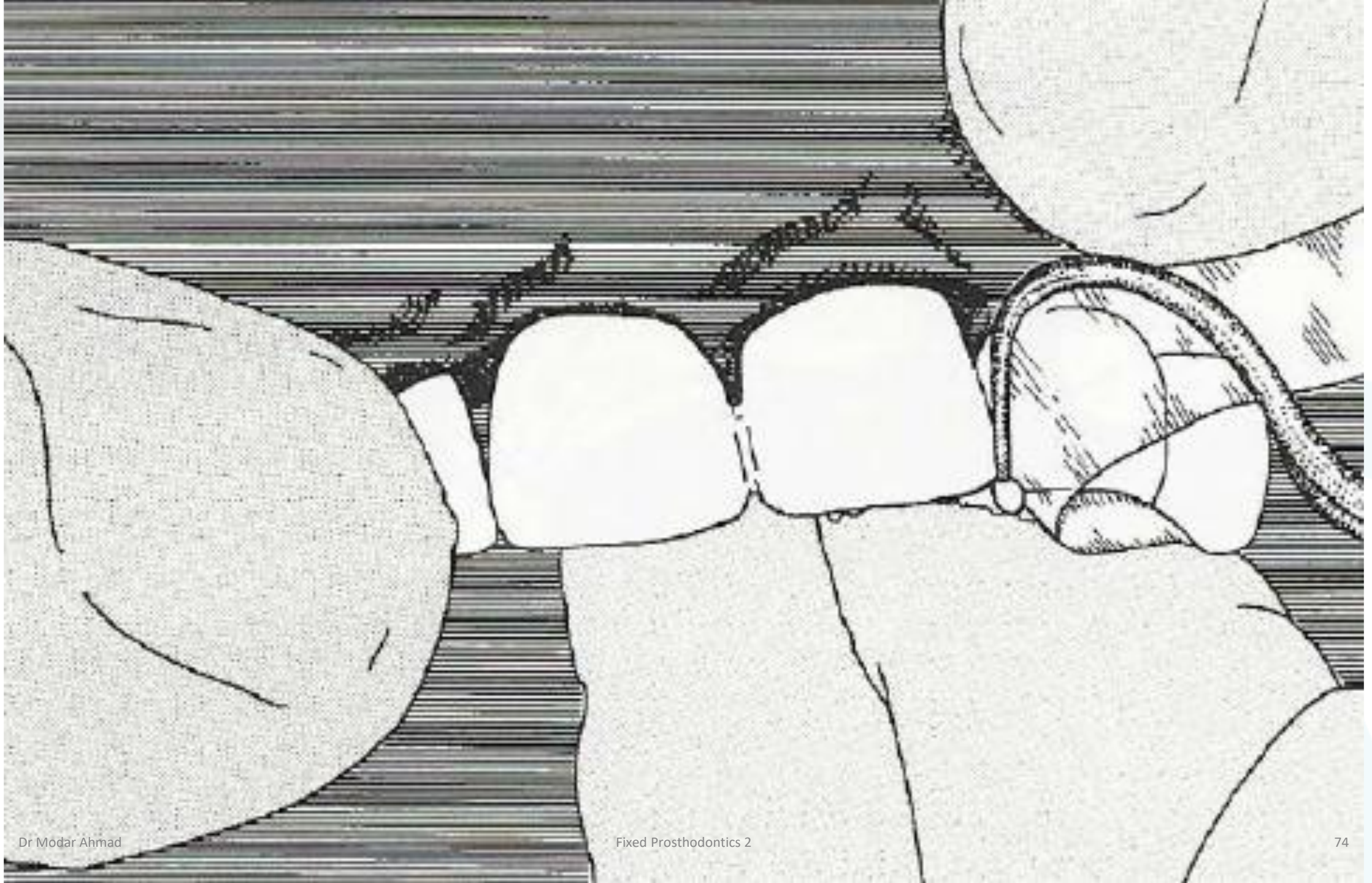




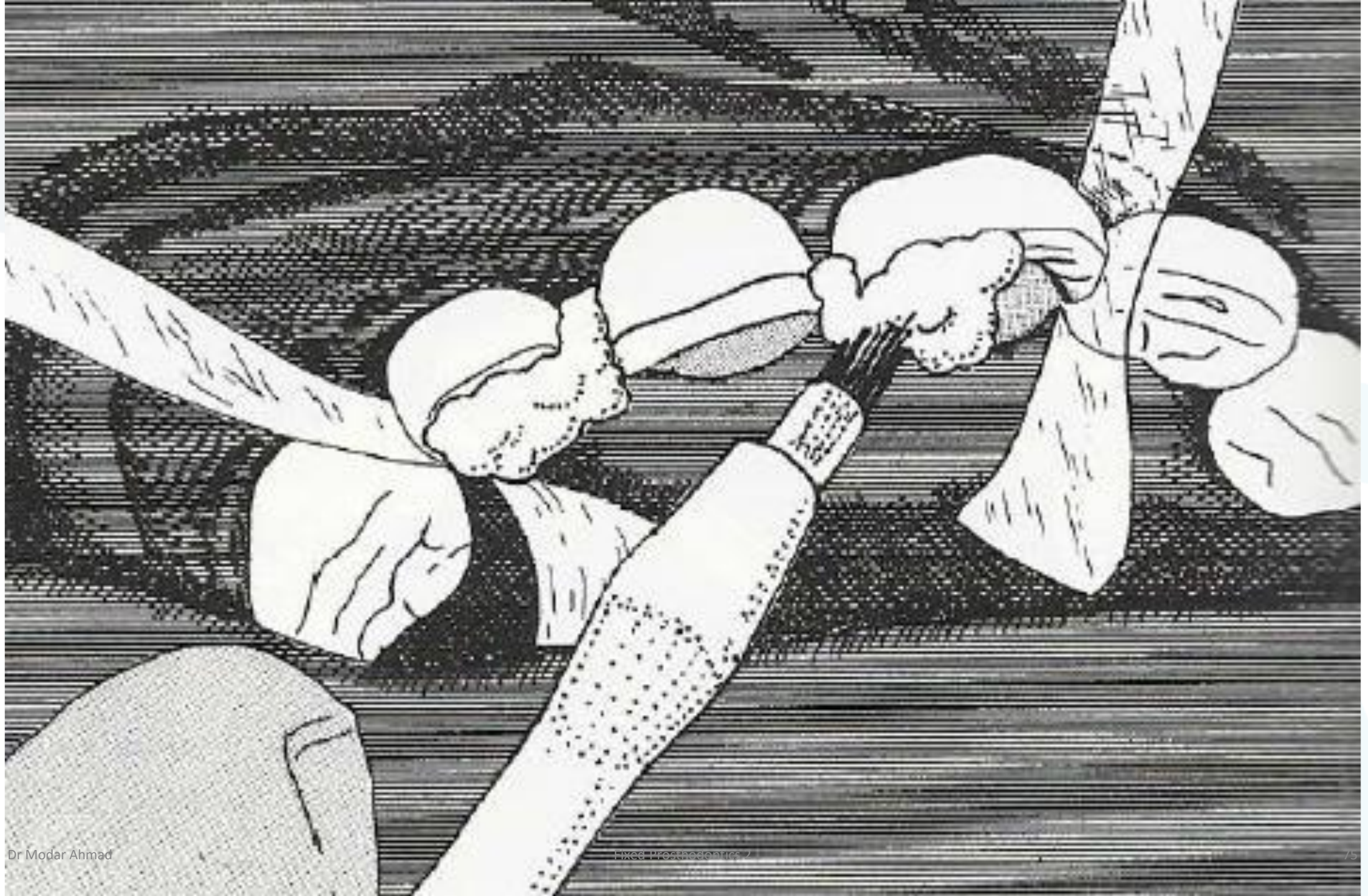














# Thanks For Listening