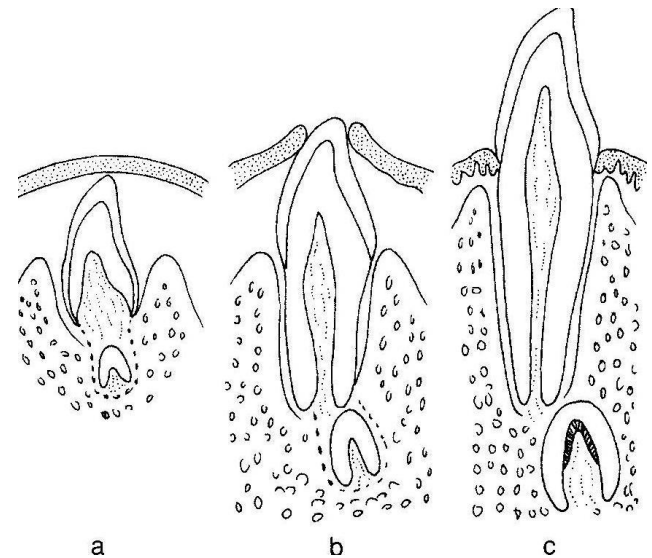


# Development of teeth, eruption of teeth, anatomy of primary teeth

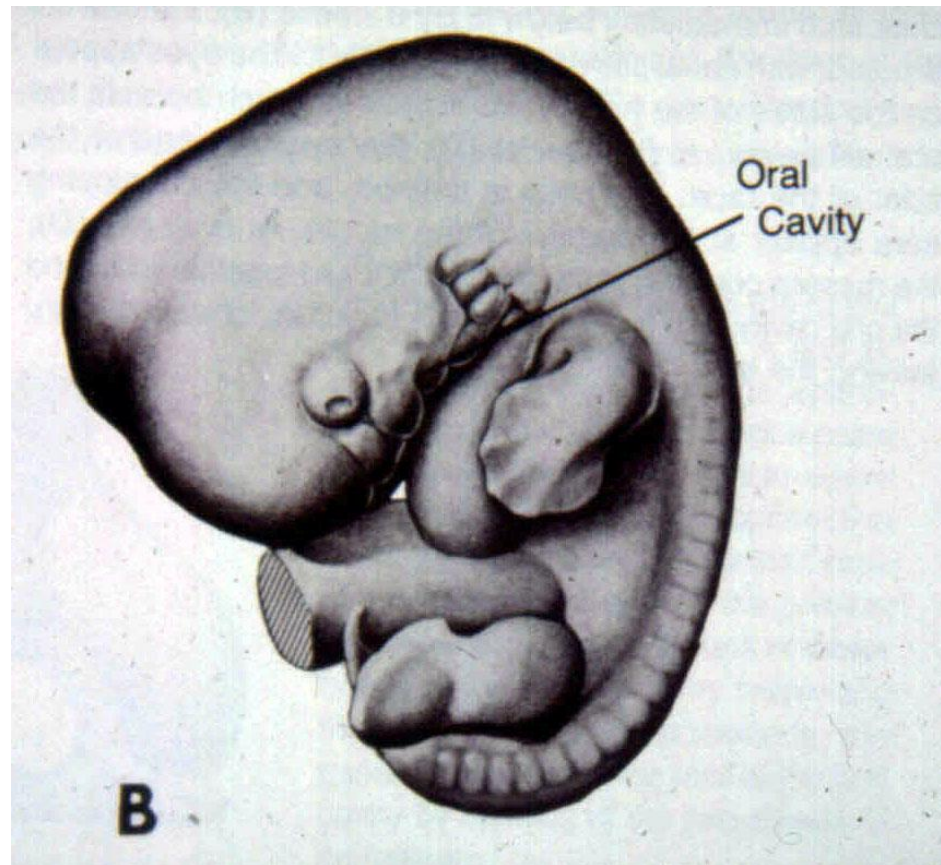
Dr. Barta Adrienn

SE – Clinics of Orthodontics and Pediatric  
Dentistry



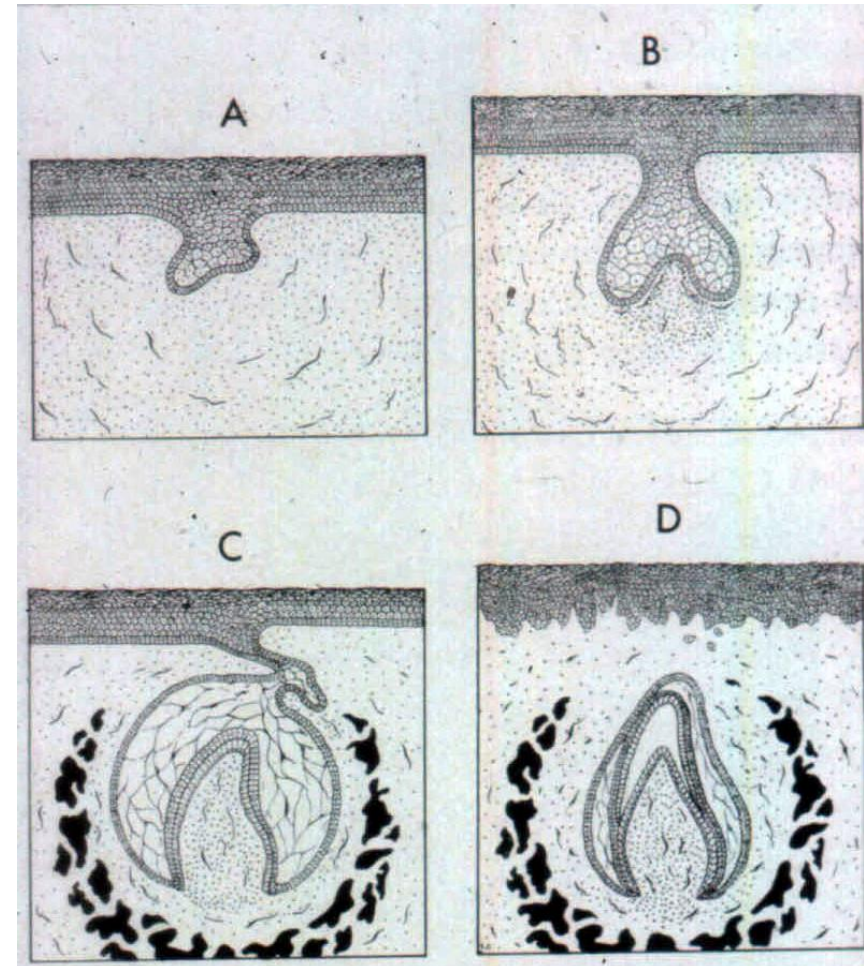
# Development of teeth

7 weeks old embryo



# Development of teeth

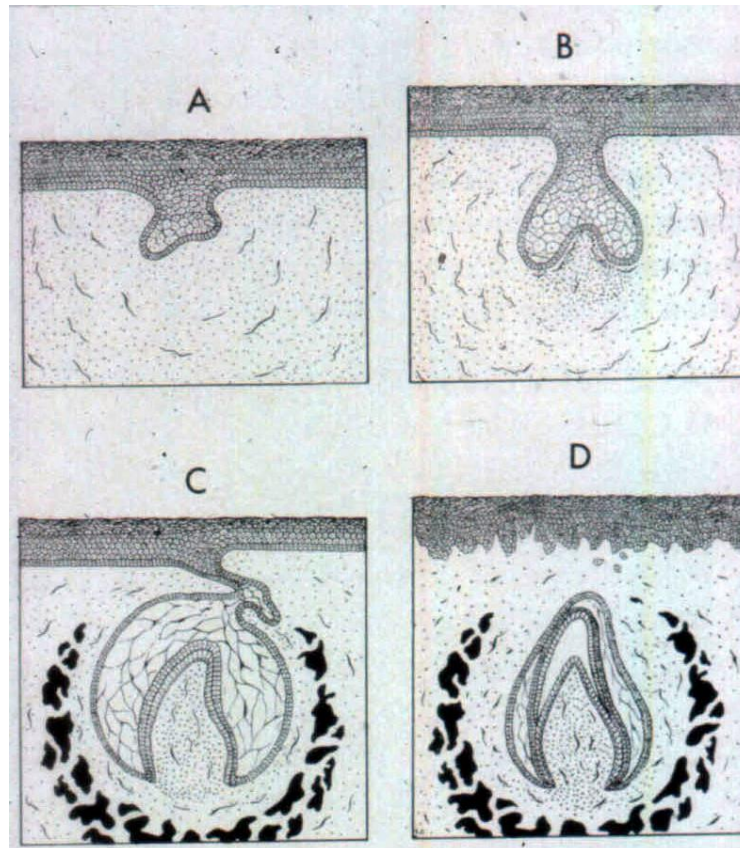
- **Induction (6th - 7th weeks)**
  - Initiation stage
  - Dental lamina
- **Proliferation:**
  - Bud stage (8th week)
  - Cap stage (9th – 10th weeks)
- **Histodifferentiation**
  - Bell stage (enamel organ) (11th – 12th weeks)
  - Dental germ
- **Calcification (maturation)**
  - Enamel
  - Dentin
- **Eruption**
  - Root (Hertwig epithelial seath)



# Development of teeth

## 1. Dental lamina

## 2. Bud-shape

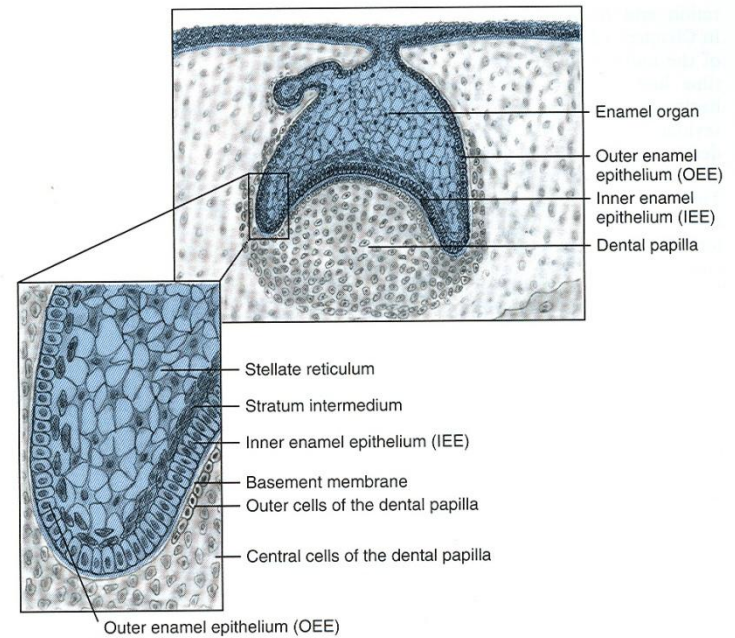
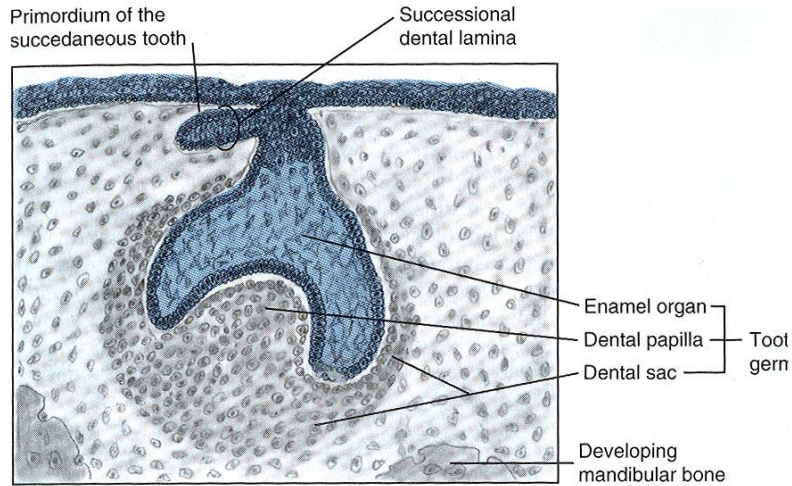


## 3. Cap-shape

## 4. Bell-shape

## 5. Dental germ

# Development of teeth



# Development of teeth

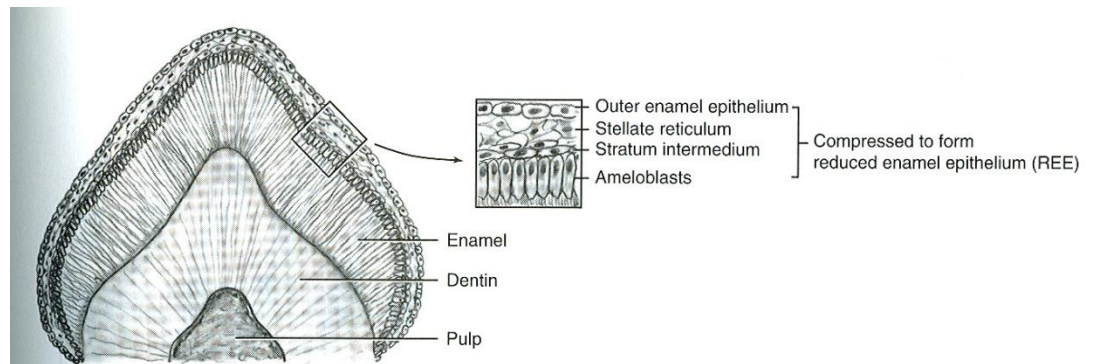
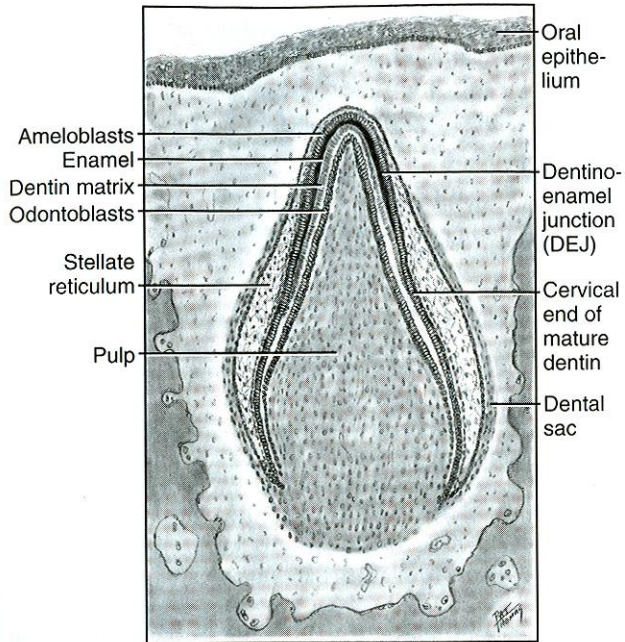
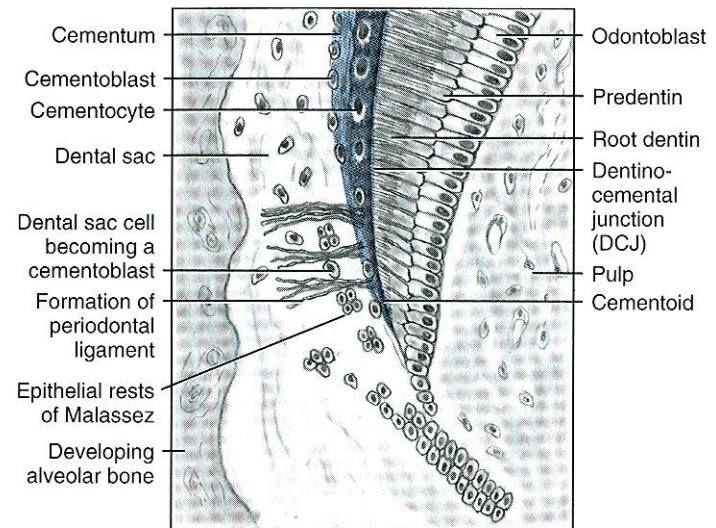
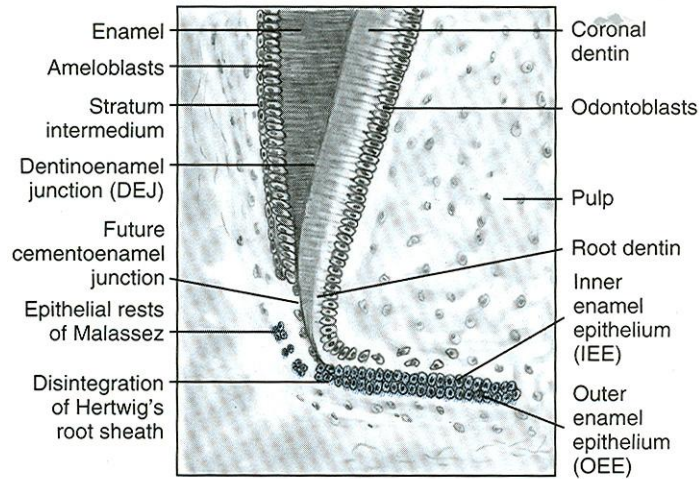


Figure 6-27

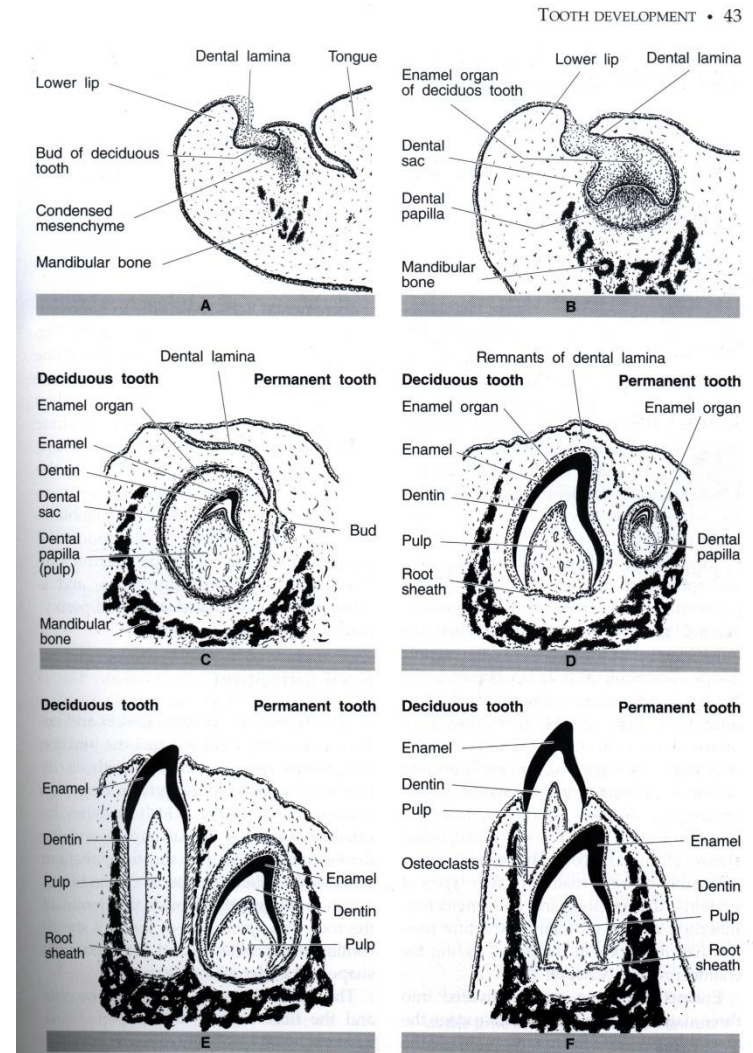
The reduced enamel epithelium is produced after the completion of enamel apposition when the enamel organ undergoes compression of its many layers on the enamel surface.

# Development of teeth



# Development of teeth

Development and eruption of lower primary incisor and its replacement by the permanent successor





# Development of teeth

The reduced enamel epithelium fused with the oral epithelium lining the oral cavity

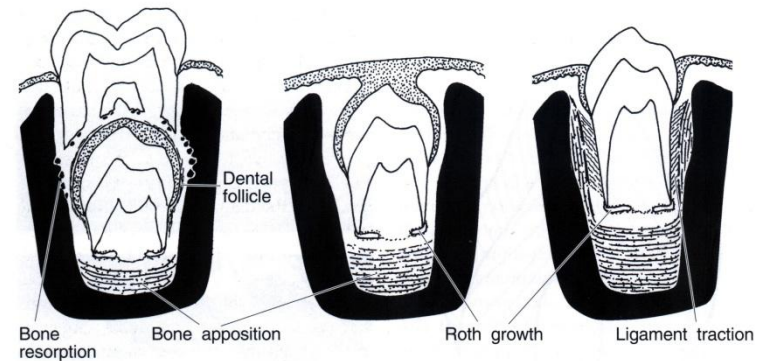
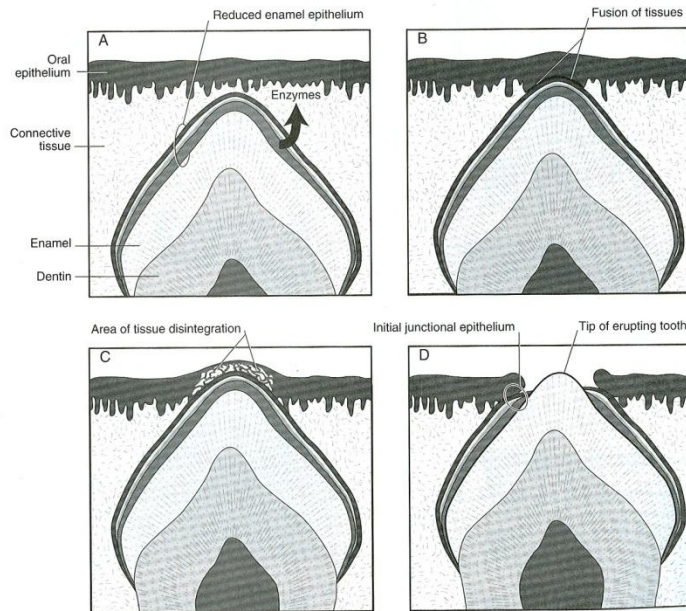
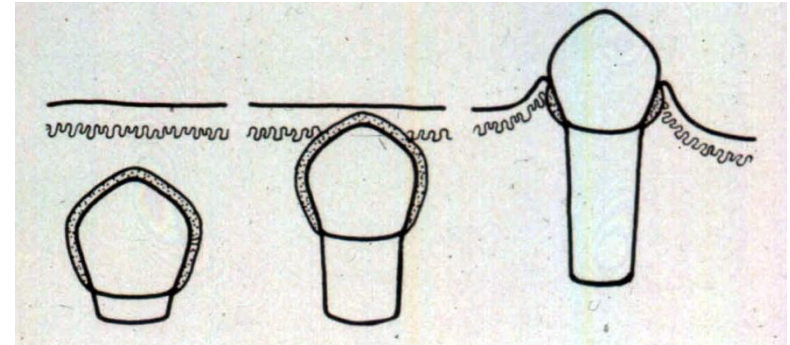


Figure 6-28 Stages in the process of tooth eruption. A: Oral cavity before the eruption process begins. Reduced enamel epithelium covers the newly formed enamel. B: Fusion of the reduced enamel epithelium with the oral epithelium. C: Disintegration of the central fused tissue, leaving a tunnel for tooth movement. D: Coronal fused tissues peel back from the crown during eruption, leaving the initial junctional epithelium near the cemento-enamel junction.

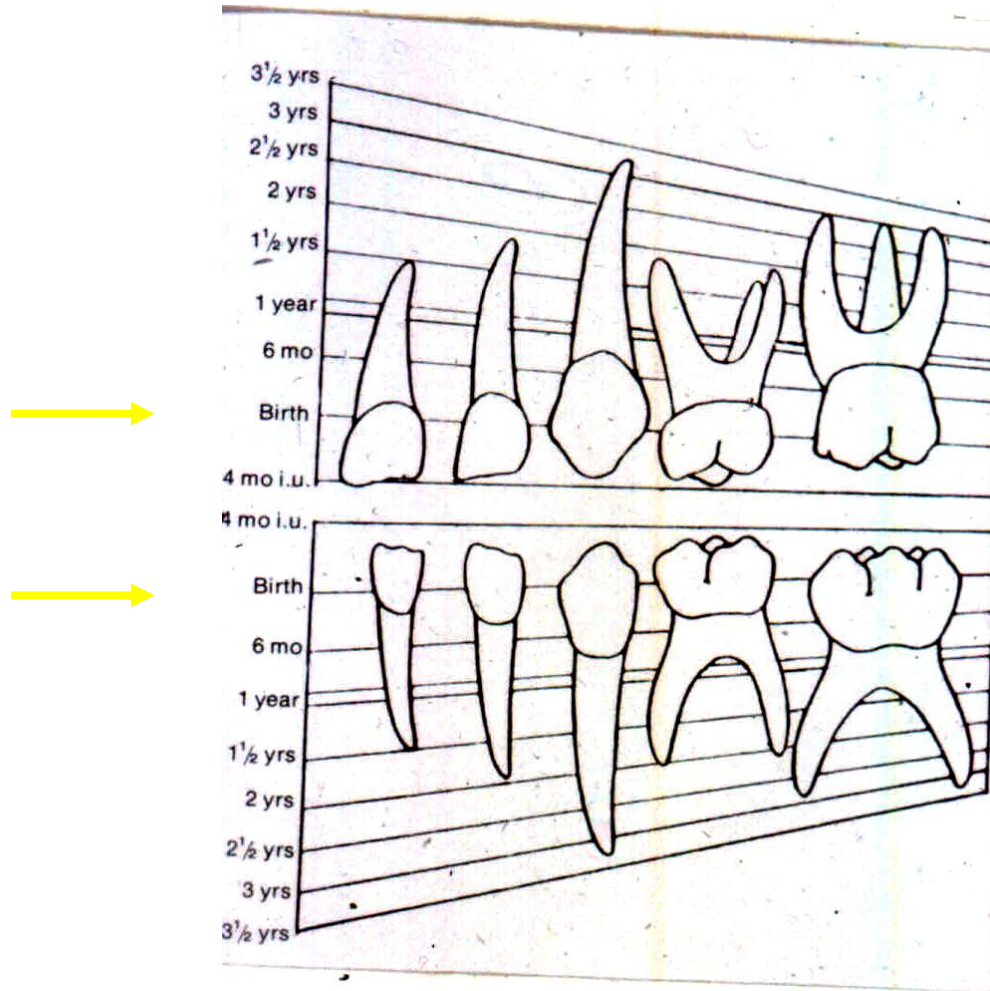
Schematic presentation of histologic changes which accompany tooth eruption

# Development of teeth

## Dental hard tissues

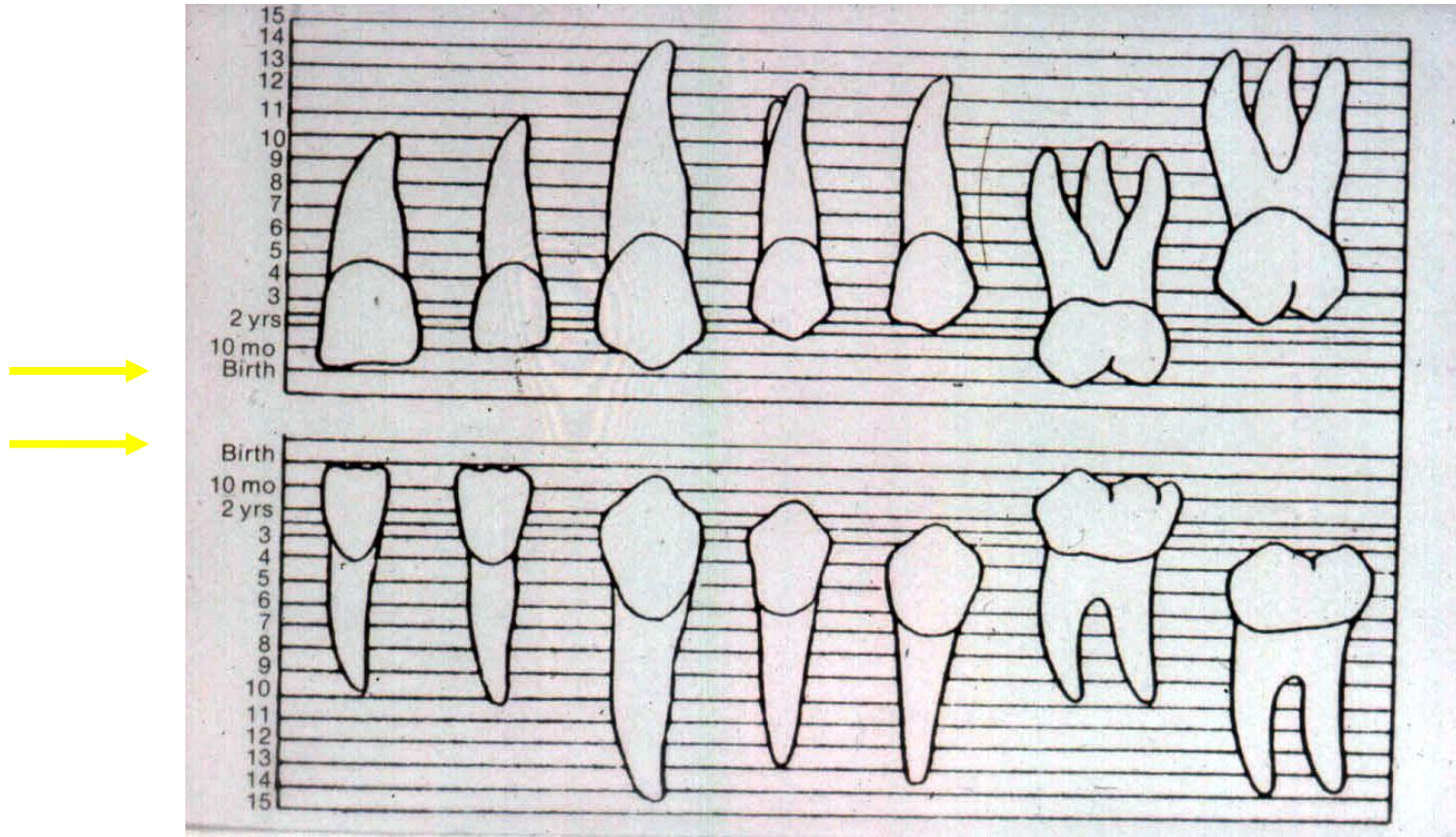
- Enamel organ → enamel (epithelial tissue)
- Dental papilla → dentin, pulp (connective tissue) →
- Dental sac → cementum, periodontal ligaments, alveolar bone  
(connective tissue)

# Development of teeth



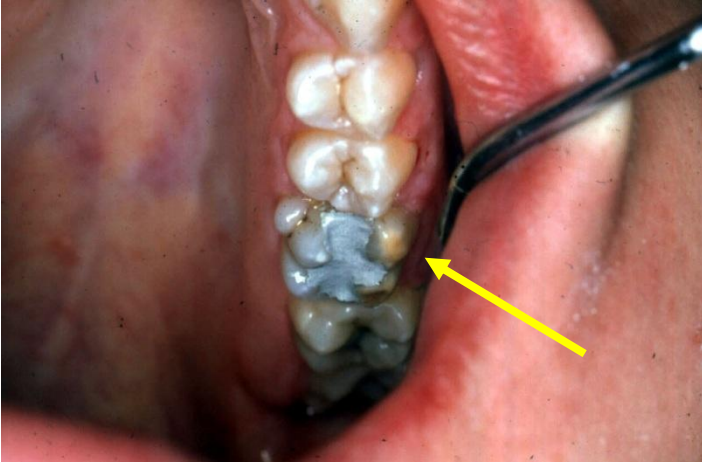
The chronology of mineralization of primary teeth

# Development of teeth



The chronology of mineralization of permanent teeth

# Development of teeth

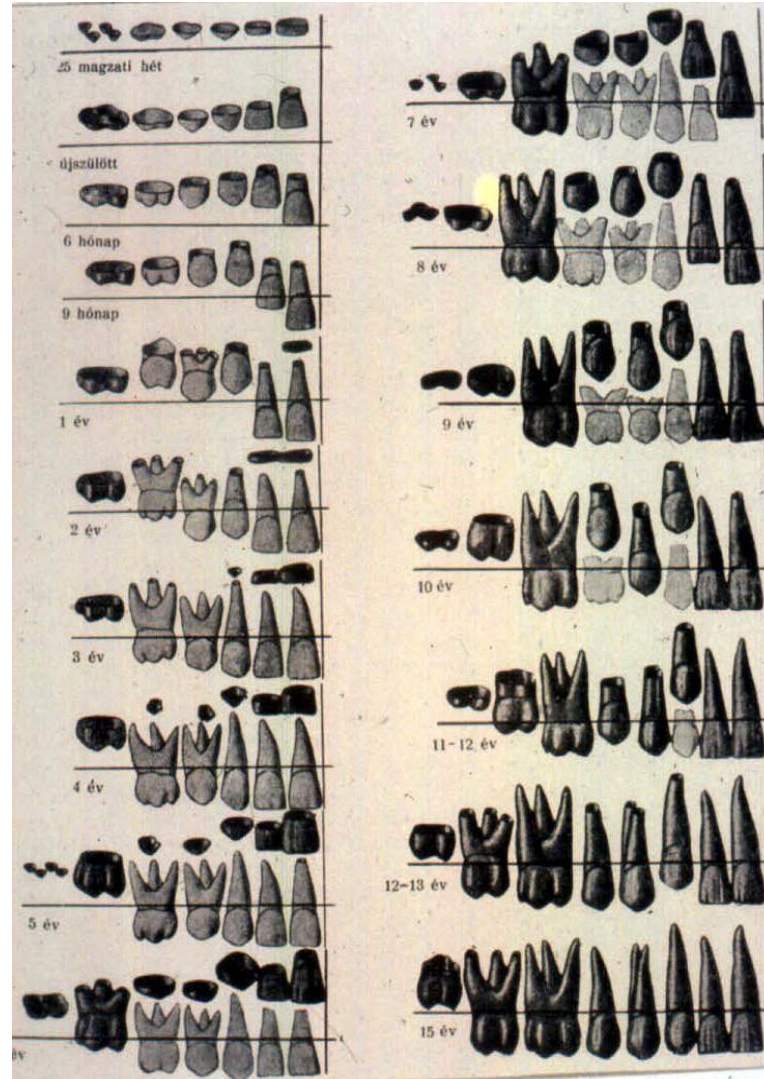


# Eruption

- Primary teeth (6 month – 2.5 year)
  - I, II, IV, III, V
- Permanent teeth (6 year – 12 year)
  - 6, 1, 2, 4, 5, 3, 7
  - Dentitio praecox (too early)
  - Dentitio tarda (too late)
  - Dentitio difficilis (difficult eruption)

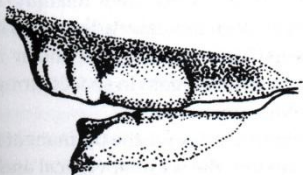
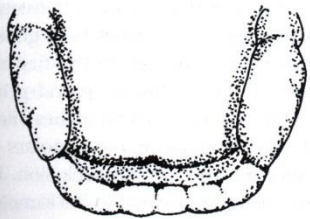
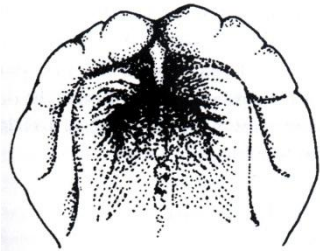
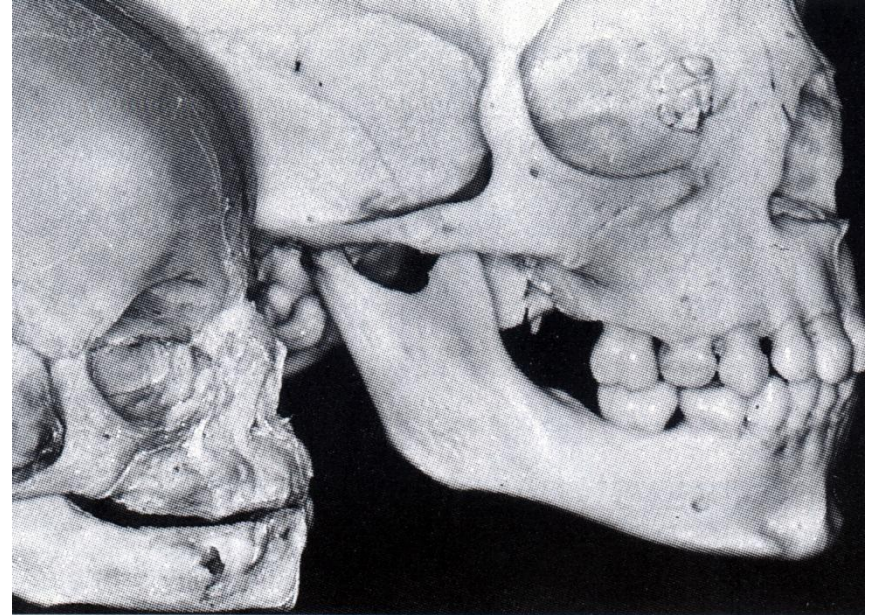


# Eruption



# Eruption

The eruption of primary teeth is accompanied by the development of the alveolar processes with considerable increase in facial height

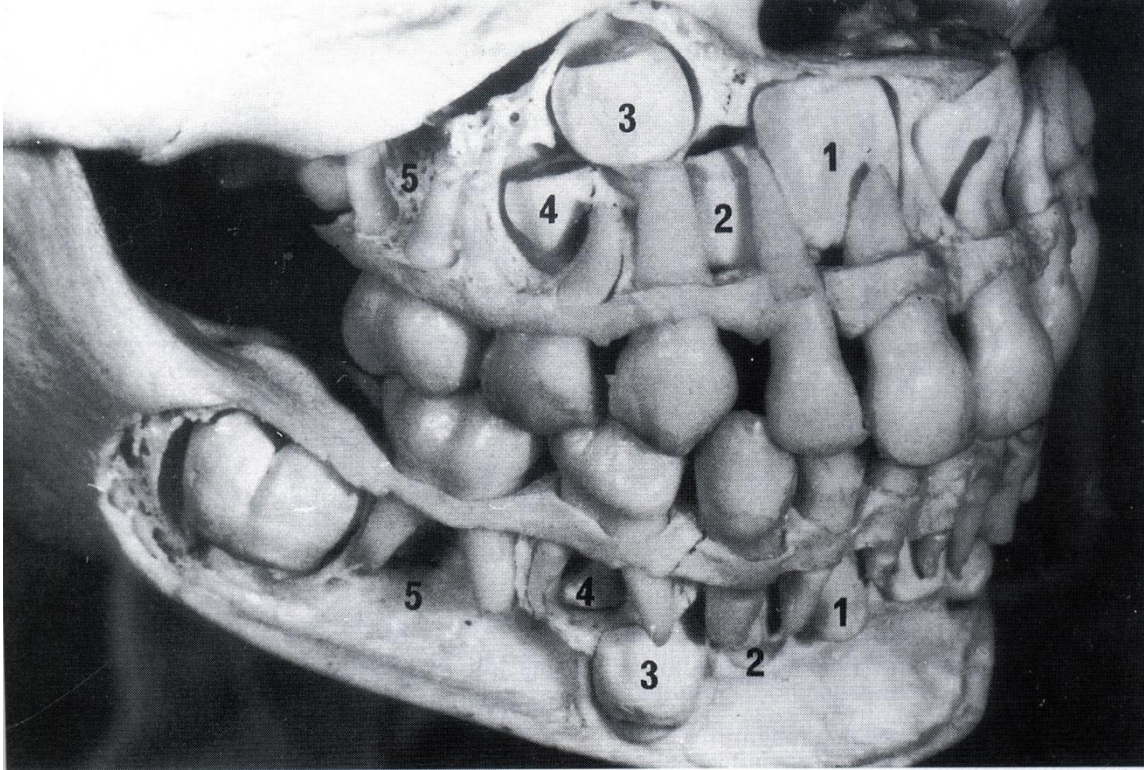


← At birth:

The gum pads are low, slightly lobulated and the palatal vault is flat; the mandible is retruded



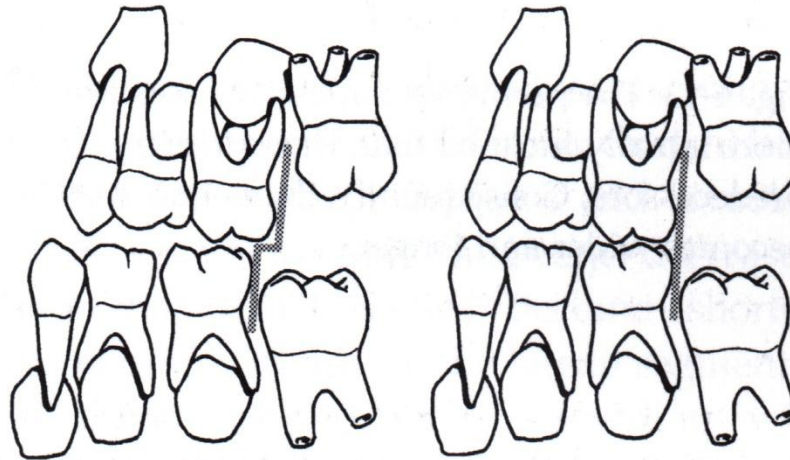
# Eruption



Relations between the roots of primary teeth and the developing crowns of the permanent teeth during the functional stage of the primary dentition

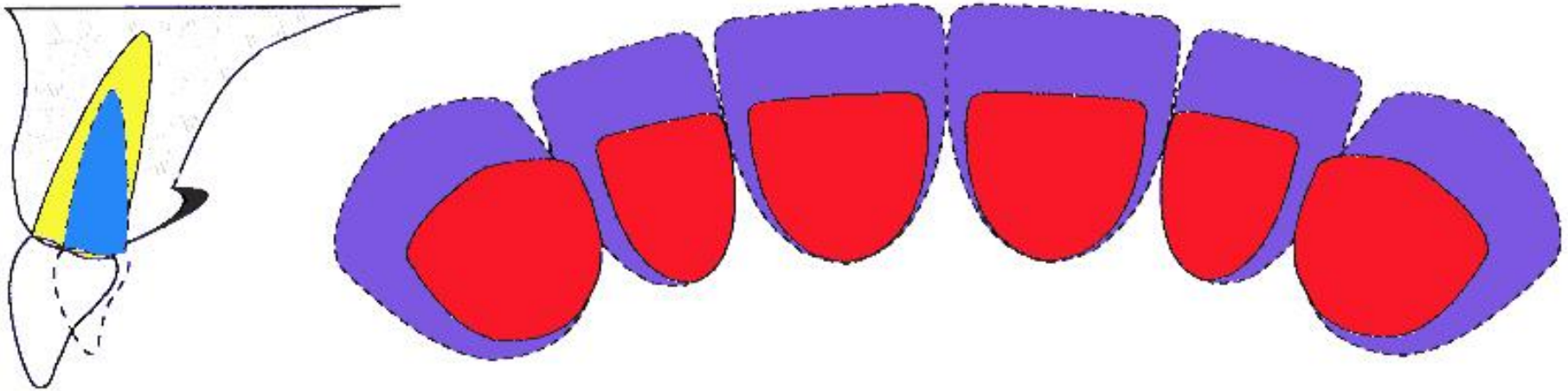
# Eruption

When there is a mesial step in the terminal plane of the primary dentition, the permanent molars may erupt directly into normal occlusion



If the primary dental arches end in the same vertical plane, the permanent molars will erupt into cusp-to-cusp relation

# Eruption

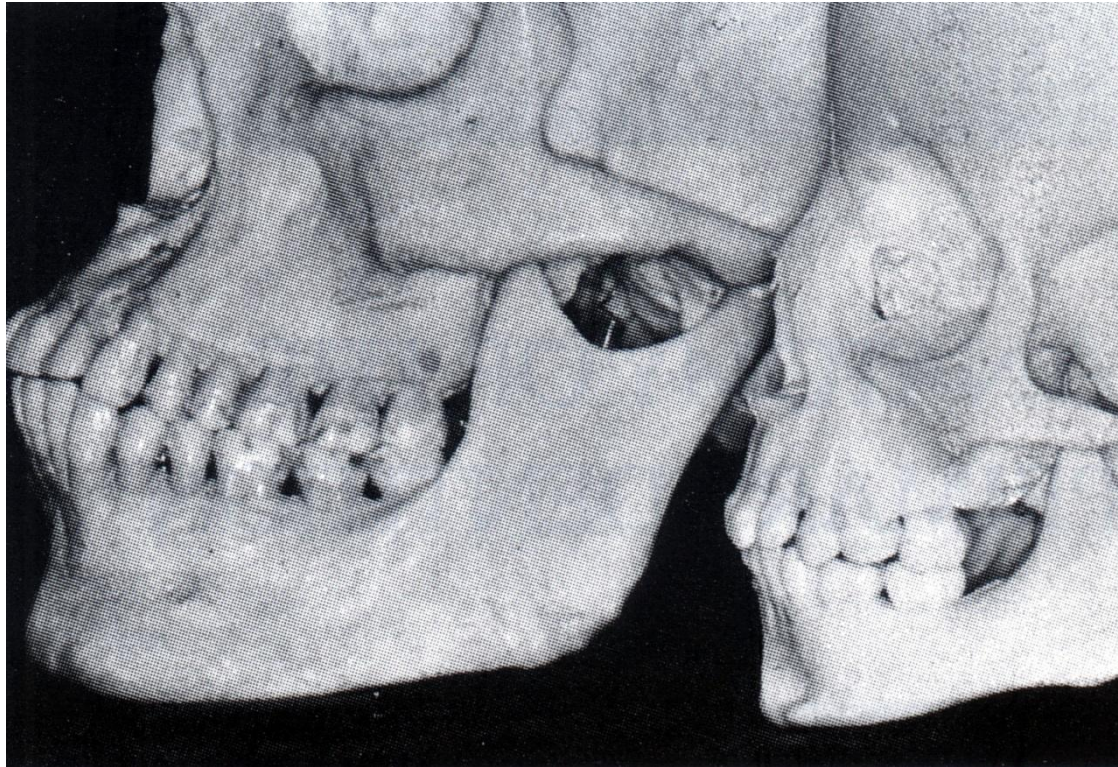


The permanent upper incisors are more labially inclined than their primary predecessors.  
Consequently, the dental arch becomes wider and longer

# Eruption

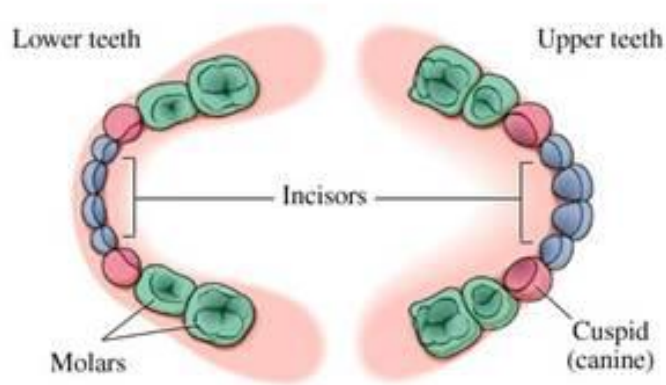


# Eruption

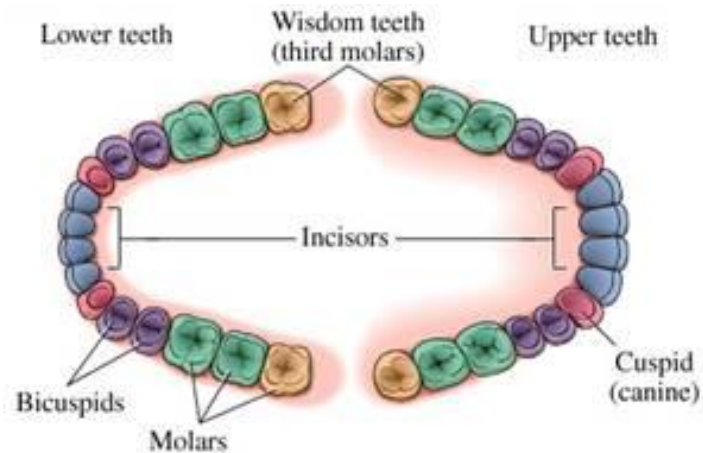


The eruption of the permanent teeth is accompanied by considerable vertical growth of the alveolar processes

# Dentition



Primary and permanent dentition



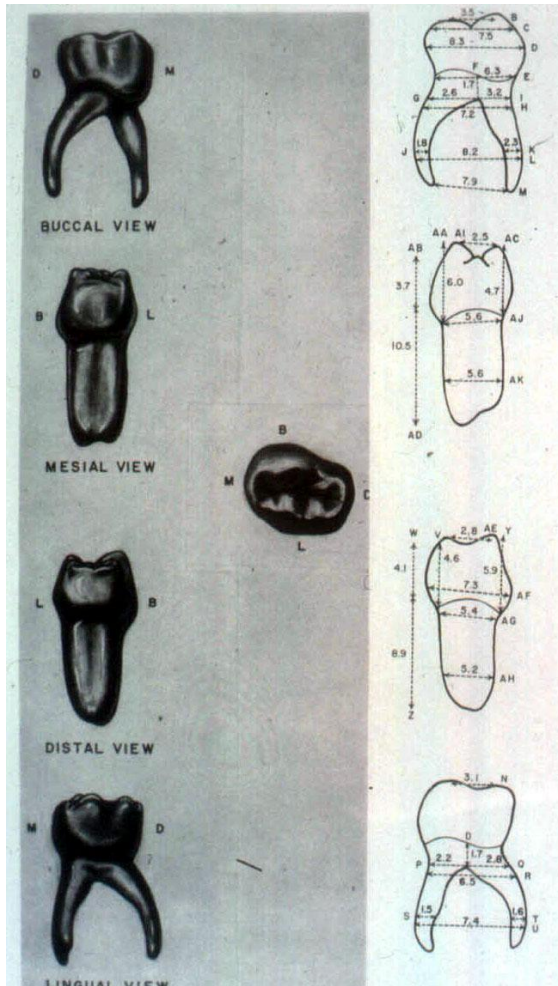
# Anatomy of primary teeth



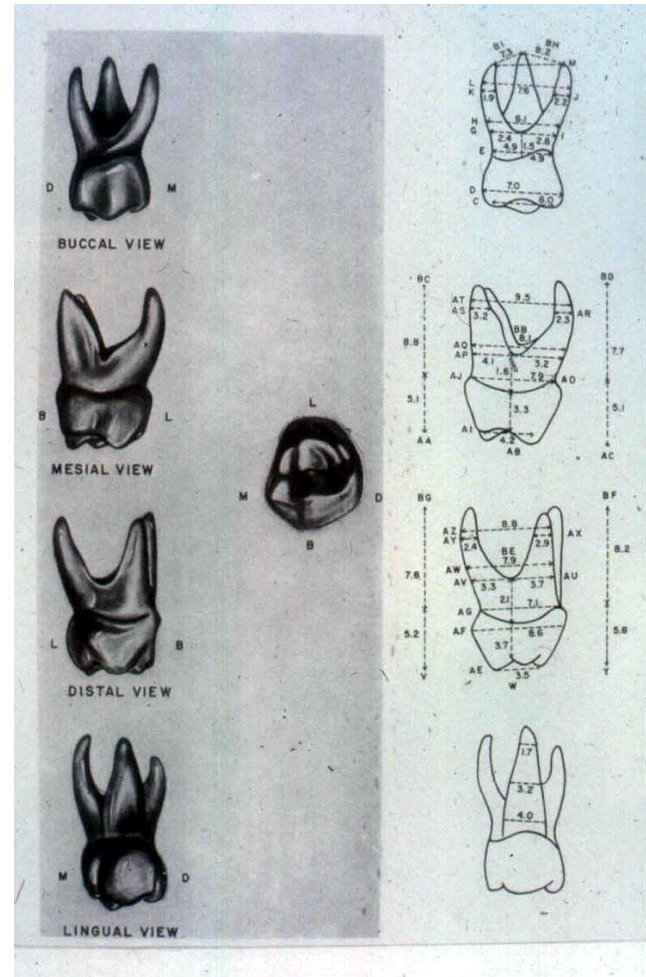
# Anatomy of primary teeth

## First primary molars

84



54

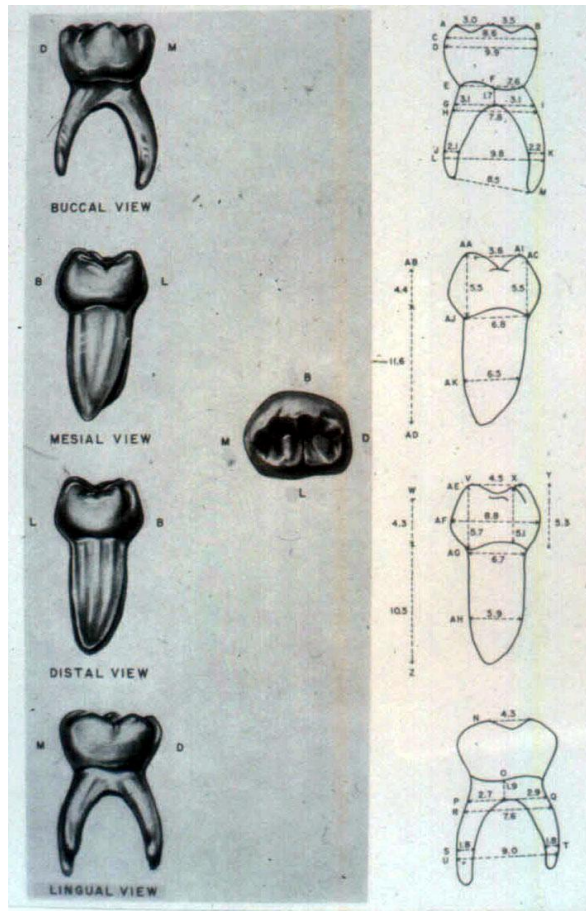




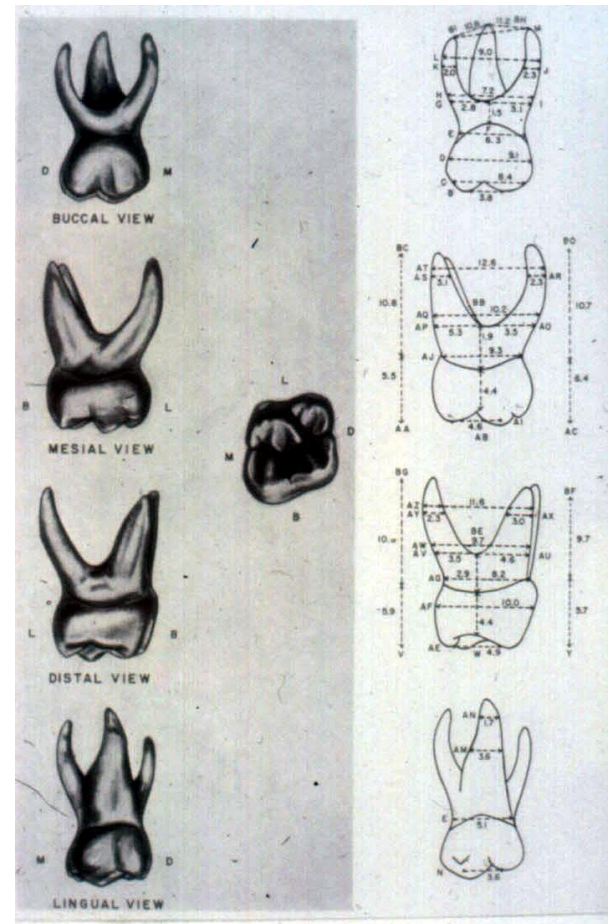
# Anatomy of primary teeth

## Second primary molars

85



55



# Anatomy of primary teeth

**The teeth 54 and 55**



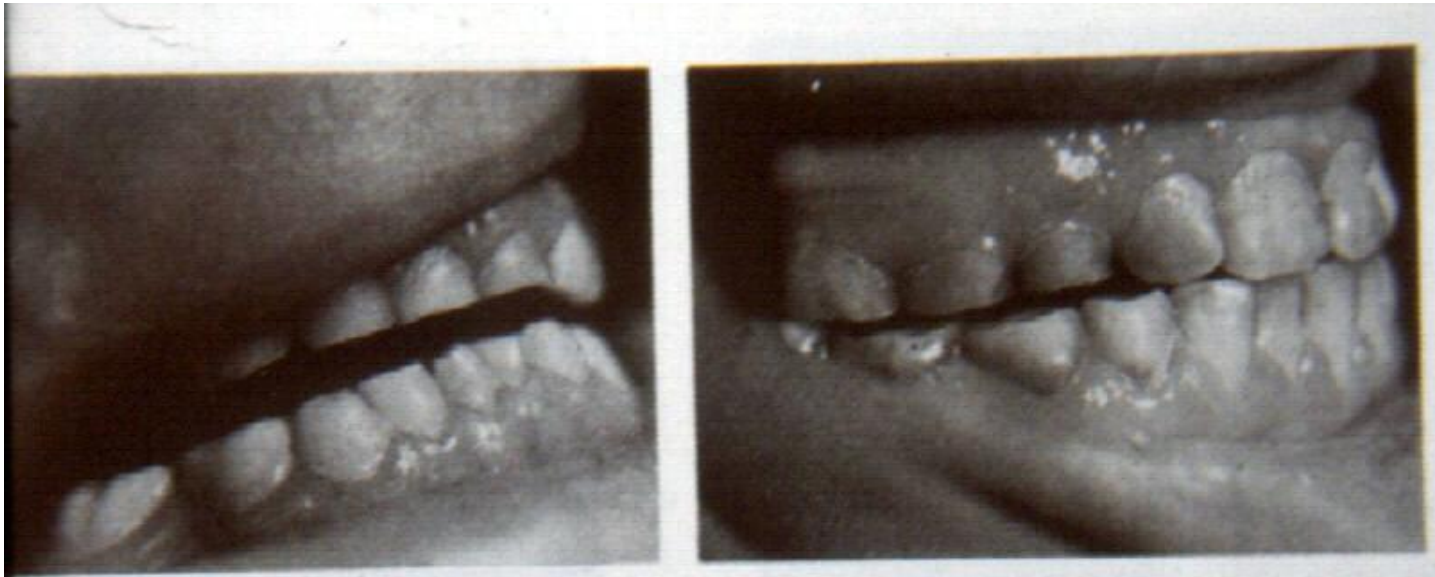
# Anatomy of primary teeth

## Attrition of primary teeth



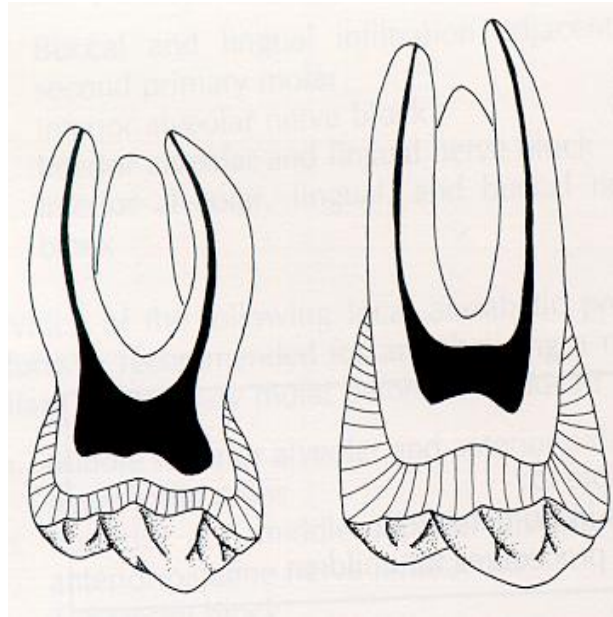
# Anatomy of primary teeth

- Occlusal wear of primary teeth  
(typical among people who exist on coarse diet)



# Anatomy of primary teeth

- Pulp chamber of primary and permanent molars



# Anatomy of primary teeth

Difference between the primary and permanent teeth (clinical examination)  
of primary and permanent molars



**Form**

**Size**

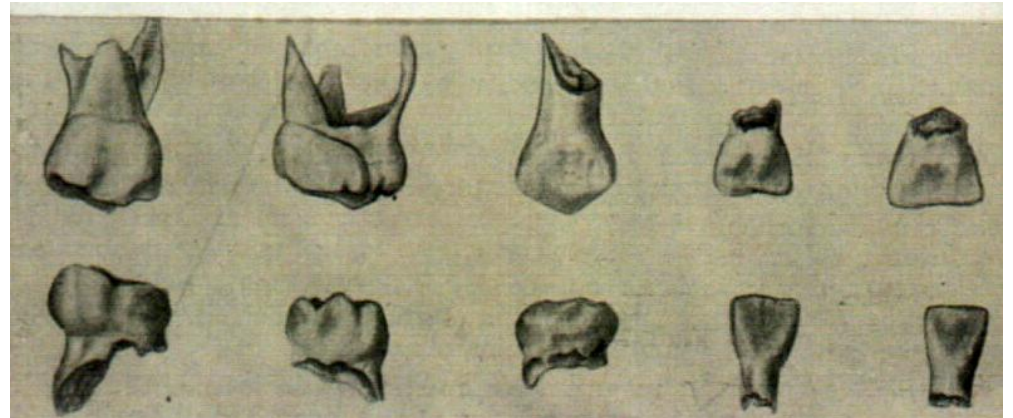
**Color**

**Attrition**

**Mobility**

**Count!!**

# Root resorption



**Thank you!**