Space Maintainers

Definitions

- Space management- includes those measures that diagnose, prevent or intercept situations so as to guide the development of dentition and occlusion
- Space maintenance- The provision of an appliance- active or passive – which is concerned only with the control of space loss, without taking into consideration measures to supervise the development of occlusion.

- **PASSIVE OCCLUSAL GUIDANCE** is treatment aimed at maintaining the total circumferences of the dental arch during the period of dental development, thus controlling the process of exchange from primary to permanent dentition
- The most common clinical procedure in this category of treatment is the use of **SPACE MAINTAINER**

Moyers' classes of space management

- Space maintenance
- Space regaining
- Space supervision
- Correction of gross discrepancies

Space Maintainer

- A space maintainer can be defined an appliance used to maintain or regain minor amounts of space lost, so as to guide the un-erupted tooth into a proper position in the arch. (Graber)
- A space maintainer is an appliance- removable or fixed which maintains the mesio-distal width of the lost permanent tooth thereby restoring function to a greater extent.(Hitchcock)

FACTORS INFLUENCING THE SELECTION OF SPACE MAINTAINER(McDonald)

- TIME ELAPSED SINCE LOSS
- DENTAL AGE OF THE PATIENT
- AMOUNT OF BONE COVERING THE UNERUPTED TOOTH
- SEQUENCE OF THE ERUPTION OF TEETH
- DELAYED ERUPTION OF THE PERMANENT TOOTH
- CONGENITAL ABSENCE OF A PERMANENT TOOTH

QUESTIONS TO BE ANWERED BEFORE PLANNING A SPACE MAINTAINER (Graber 1988)

- Has the balance been disturbed ?
- Will nature adapt to this change favorably or unfavorably?
- Is the loss of a tooth, or teeth, likely to stimulate abnormal muscle function or habits?
- Will the occlusion, through the inclined plane action of the opposing teeth be sufficient to prevent migration into the edentulous area?
- If a malocclusion is already present; will this have any effect on the space created by the loss of a deciduous tooth?
- How does the loss of the primary tooth affect the eruption time of permanent tooth?
- If a space maintainer has to be placed, what kind should be used?

Disturbance of the balance

- Cannot be predicted as the loss of a tooth in a growing arch may not be similar to the space loss in an arch where growth has been completed.
- Since the lower arch is the contained arch the loss of a structural unit is more likely to require space maintenance.(Owen 1984)

Adaptation of the structures to these changes

- Bone- may become unusually dense
- Mucosa – may undergo a fibrous thickening
- Both these conditions may result in the delayed eruption of the permanent teeth and must be monitored.
- Development of tongue thrust- “functional space maintainer”?

STIMULATION OF ABNORMAL MUSCLE FUNCTION

- The development of abnormal muscle function may serve to arrest the space loss
- The development of habits may on the other hand result in the formation of a tongue thrust or cheek bite, digit sucking in the case of anterior tooth loss. These can be prevented by giving a space maintainer

Inclined plane effect of occlusion

- The intercuspation of the teeth in occlusion has a locking or inclined plane effect on the teeth and may prevent their drift.
- However due to attrition there is seldom any locking of the posteriors in the primary dentition.
- Locking cusps are a “rarity”.
- There is less chance of locking in the case of a flush terminal plane

What does premature loss of the tooth do to the Eruption of the tooth

- Early eruption of the tooth- desirable
- McDonald – loss of the primary molar before 7 yrs will lead to a delayed eruption while loss after 7 yrs will lead to a hastened eruption
- Pinkham- 8yrs
- Graber- eruption depends on the density of bone thus periodic radiographs are necessary to assess the type of bone forming in the extraction socket.

If malocclusion is already present, does the loss of tooth have any effect on the malocclusion?

- Depends on the type of malocclusion
- Incipient class II- loss of a mandibular tooth may cause an increase in the overjet and overbite as the perioral forces cause the drift of the teeth adjoining the space.
- In an incipient class III occlusion the loss of the anteriors may result in the formation of a skeletal crossbite.

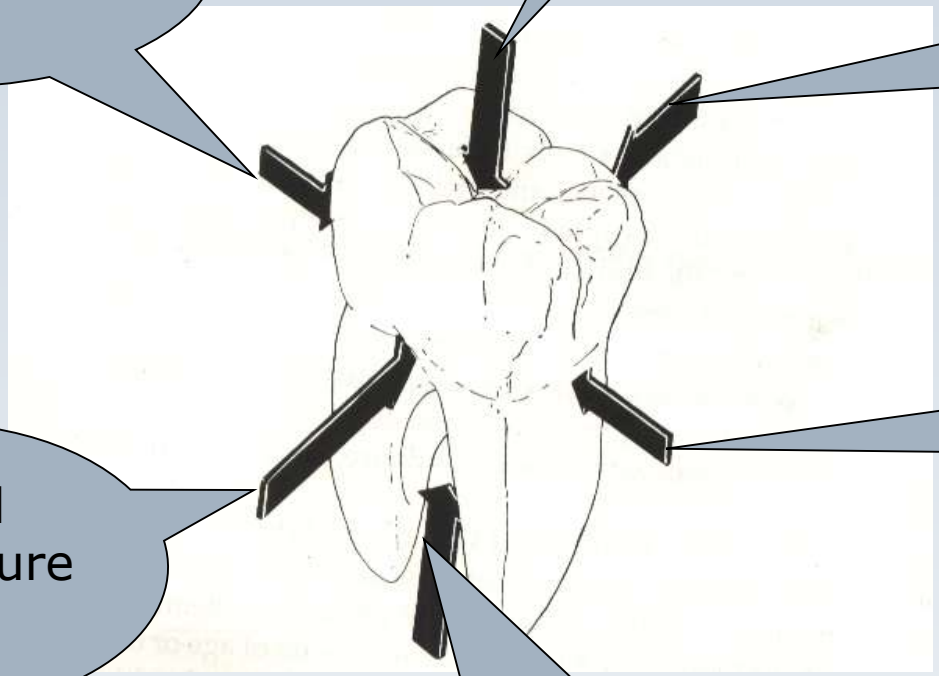
Criteria for giving a space maintainer (Moyers 1978)

- Loss of a primary tooth
- No loss of arch perimeter
- Favourable mixed dentition analyses

Factors affecting space loss(Moyers , Profitt , McDonald)

- Factors affecting the position of the tooth
  - Forces acting on the tooth
  - Role of eruptive forces
- Role of the arch length
  - Role of Curve of Spee
  - Role of existing spaces

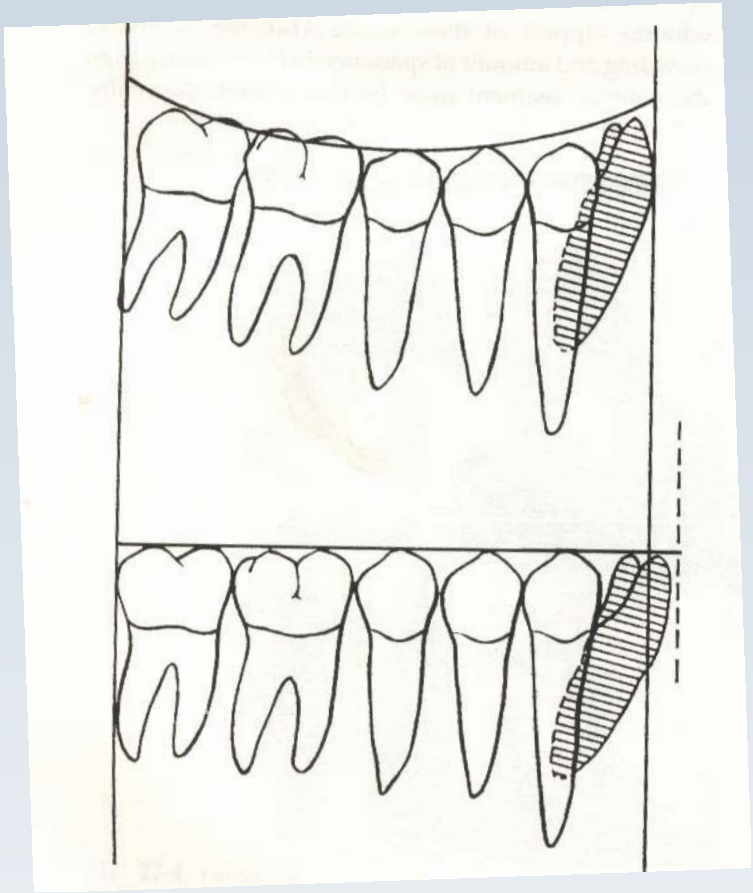
Forces Acting on the tooth



Periodontal fibre system and the role of the trans-septal fibres (Profitt)

- The periodontal fibre system has bee shown to play an important role in the migration of the teeth. In the permanent teeth the system causes an extension of the eruptive movement thus resulting in the mesial drift.
- In the primary teeth the role of transeptal fibres is more important. They result in the distal drift of the teeth. Kruger et al conducted a study where the repeated sectioning of the transeptal fibres following extraction of a tooth in monkeys prevented any space loss.
- Recent studies have shown that the role of occlusion in the mesial drift is minimal and that the intercuspation of the molars may actually delay the migration of teeth.

Role of arch length



Role of the existing spaces

- Primate space
- Leeway space of Nance
- Moorees (1958)- showed that the arch length at age 18 was smaller than the arch length at age 3.
- Barber(1967) Suggested the goal of space management must be the prevention of loss of arch length – no matter how small.

Classification (Heinrichsen 1962)

- FIXED

CLASS I

a. Non functional type

Bar type

Loop type

b. Functional type.

Pontic type.

Lingual Arch type.

CLASS II

-Cantilever type

Distal shoe.

Band and loop

- REMOVABLE

RPD

Hitchcock(1973)

- Removable or fixed or semi fixed.
- With bands or without bands.
- Functional or Non-functional
- Active or passive
- Certain combination of the above

Thurow (1978)

- Removable
- Complete arch
  - Lingual Arch
  - Extra oral anchorage
- Individual tooth

Mathewson 1977

- Band crown and Loop
- Nance holding arch
- Fixed lingual arch
- Intra-alveolar distal shoe appliance

PREREQUISITES

- They should maintain the mesiodistal dimension of the lost tooth.
- If possible, they should be functional at least to the extent of preventing the over eruption of the opposing tooth or teeth.
- They should be as simple and as strong as possible.
- They must not endanger the remaining teeth by composing excessive stresses on them.
- Must be easily cleaned and not serve as traps for debris which might enhance dental caries and soft tissue pathology.
- Their construction must be such that they do not restrict normal growth and development processes or interfere with such functions as mastication , speech & deglutition.

Indications of Space Maintainers (Mathewson)

- If the space after premature loss of the primary teeth shows signs of closing
- If the use of a space maintainer will aid in or make future orthodontic treatment more involved

Contraindications

- Permanent tooth is ready to erupt
- When space create exceeds the space needed for the permanent successors
- When there is no bone above the permanent tooth.
- When tooth loss or space loss will create more favorable occlusion
- Doubtful patient cooperation

Space Maintainers in the Anterior segment

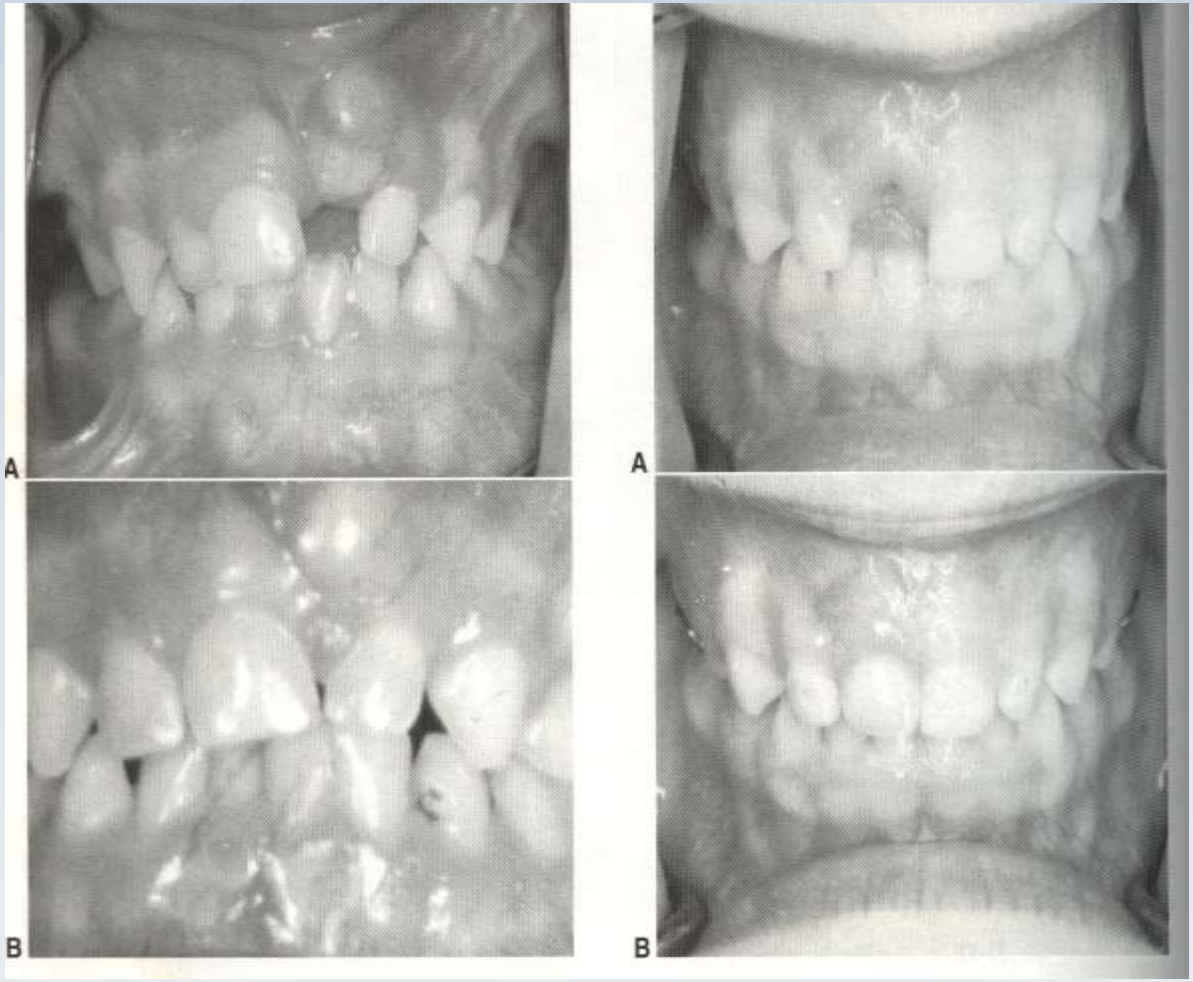
- Rationale (Moyers)

  - Maintenance
  - Function
  - Aesthetics
  - Phonetics

- Of these controversies exist as to the rationale of space loss
- Pinkham- the loss of anterior teeth due to caries, especially the mandibular anteriors is associated with rampant caries. At such a stage the role of a Space maintainer in accelerating the caries process must also be kept in mind

- Pinkham suggests that there is almost never a space loss in the anteriors
- Space rearrangement is possible however the overall space remains the same.
- Moyers suggests that while the chances of space loss are low each patient must be evaluated individually
- Graber – points out that in incipient class III the anterior space maintainer shield the developing maxilla from the forces of the lip and thus prevents a skeletal over-jet

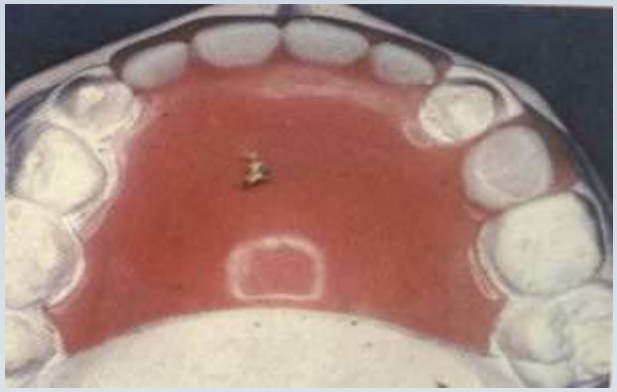
- McDonald reinforces the view of Moyers and gives case reports of loss of space in the anterior segment



Role in the development of speech

- Reickman GA and ElBadawry HE (1985) Conducted a study to evaluate the effects of premature loss of teeth on speech patterns of children. They found that while loss of the anterior tooth before the development of speech resulted defective phonetics a loss of the tooth after the development of speech had no long term adverse effect on the phonetic ability of the child

MAXILLARY ANTERIOR SEGMENT



IN THE VERY YOUNG CHILD A FIXED SPACE MAINTAINER AIDS IN SPEECH, ESTHETICS AND PSYCHOLOGICAL ASPECTS.

IN OLDER AND MATURE CHILD A REMOVABLE TYPE PALATAL RETAINER WITH A TOOTH CAN BE GIVEN AS THEY WILL BE MORE CO-OPERATIVE .

MANDIBULAR ANTERIOR SEGMENT

- Tooth loss in mandibular anterior is rare
- It is difficult to anchor a SM on the tiny primary incisors. An added hazard is accelerating the loss of contagious teeth which serve to hold the maintainer.

- A canine to canine fixed lingual arch or primary molar to primary molar fixed lingual arch may work some time.
- A removable SM is not very desirable here because of its poor retention qualities.

SPACE MAINTAINERS IN POSTERIOR TOOTH LOSS

Unilateral loss of a primary molar

- **BAND AND BAR**
- **CROWN & BAR**
- **BAND AND LOOP**
- **CROWN AND LOOP**

Unilateral loss of a primary molar before the eruption of the permanent I molar

- **DISTAL SHOE**

Bilateral space loss in the maxillary arch

- NANCE HOLDING ARCH
- TRANSPALATAL ARCH

Bilateral space loss in the mandibular arch

- FIXED LINGUAL HOLDING ARCH
- REMOVABLE FIXED LINGUAL ARCH

Terlaje RD and Donly KJ -JDC 2001

Table 1 ☐ Primary dentition.

Maxilla	
Missing Tooth	Treatment
-Unilateral loss Primary 1st molar	Band/crown and loop
-Unilateral loss Primary 2nd molar	No treatment until eruption of 1st permanent molar, then distal crown and loop until both 1st permanent molars are completely erupted and a transpalatal can be placed
-Bilateral loss Primary 1st molars	Bilateral bands/crowns and loops.
-Bilateral loss Primary 2nd molars	No treatment until eruption of 1st permanent molars, then distal crown and loops until both 1st permanent molars are completely erupted and a Nance can be placed.
-Multiple bilateral Primary molar loss	Saddle appliance until 1st permanent molars are completely erupted and a Nance can be placed

Mandible	
Missing Teeth	Treatment
-Unilateral loss Primary 1st molar	Band/crown and loop
-Unilateral loss Primary 2nd molar	Distal shoe until eruption of 1st permanent molars and permanent incisors, then lower lingual holding arch
-Bilateral loss Primary 1st molars	Bilateral bands/crowns and loop
-Bilateral loss Primary 2nd molars	Bilateral distal shoes until eruption of 1st permanent molars and permanent incisors, then lower lingual holding arch
-Multiple bilateral Primary molar loss	Saddle appliance until 1st permanent molars and permanent incisors are erupted and a lower lingual holding arch can be placed

Table 2 ☐ EARLY MIXED DENTITION (Permanent 1st molars erupted, but all permanent incisors not erupted).

Maxilla	
Missing Tooth	Treatment
Unilateral loss Primary 1st molar	No treatment unless leeway space is to be preserved
Unilateral loss Primary 2nd molar	Transpalatal
-Bilateral loss Primary 1st molars	No treatment unless leeway space is to be preserved
-Bilateral loss Primary 2nd molars	Nance
-Multiple bilateral Primary molar loss	Nance

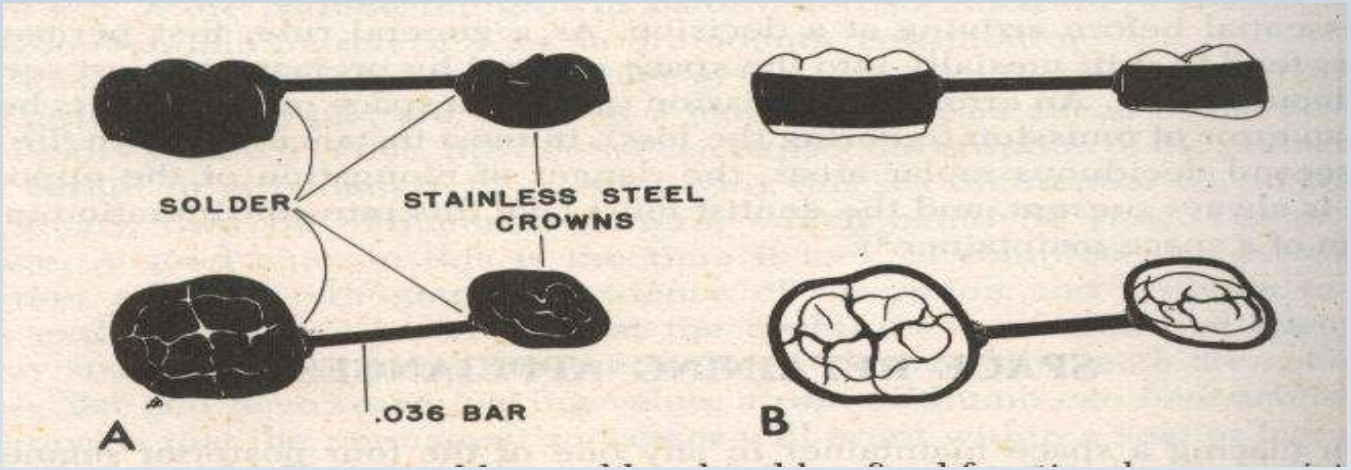
Mandible	
Missing Tooth	Treatment
-Unilateral loss Primary 1st molar	No treatment unless leeway space is to be preserved
-Unilateral loss Primary 2nd molar	Band and loop until eruption of permanent incisors, then lower lingual holding arch
-Bilateral loss Primary 1st molars	No treatment unless leeway space is to be preserved
-Bilateral loss Primary 2nd molars	Bilateral bands and loops until eruption of permanent incisors, then lower lingual holding arch
Multiple bilateral Primary molar loss	Saddle appliance until eruption of permanent incisors, then lower lingual holding arch

Table 3 ☐ LATE MIXED DENTITION (Permanent 1st molars and all permanent incisors erupted).

Maxilla	
Missing Tooth	Treatment
-Unilateral loss Primary 1st molar	No treatment unless leeway space is to be preserved
-Unilateral loss Primary 2nd molar	Transpalatal
Bilateral loss Primary 1st molars	No treatment unless leeway space is to be preserved
-Bilateral loss Primary 2nd molars	Nance
-Multiple bilateral Primary molar loss	Nance

Mandible	
Missing Tooth	Treatment
Unilateral loss Primary 1st molar	No treatment unless leeway space is to be preserved
-Unilateral loss Primary 2nd molar	Lower lingual holding arch
-Bilateral loss Primary 1st molars	No treatment unless leeway space is to be preserved
-Bilateral loss Primary 2nd molars	Lower lingual holding arch
-Multiple bilateral Primary molar loss	Lower lingual holding arch

BAND AND BAR



It is the simplest but not the most acceptable functional space maintainer

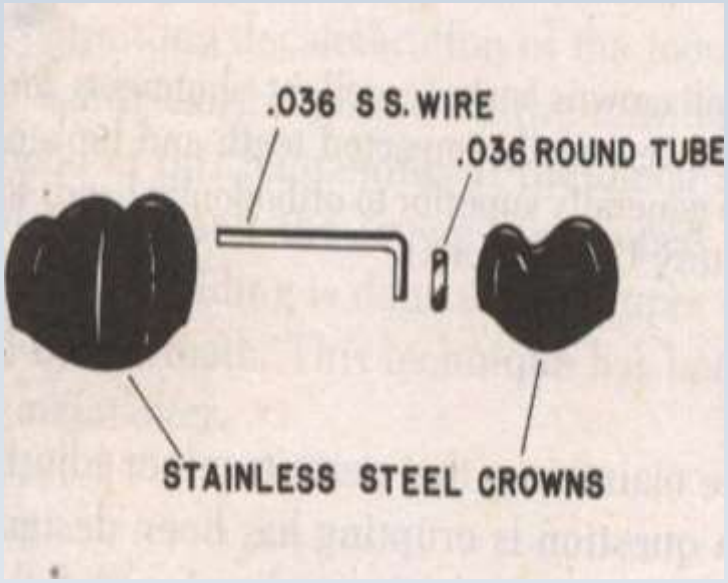
A bar of .36 " SS wire is soldered to the bands

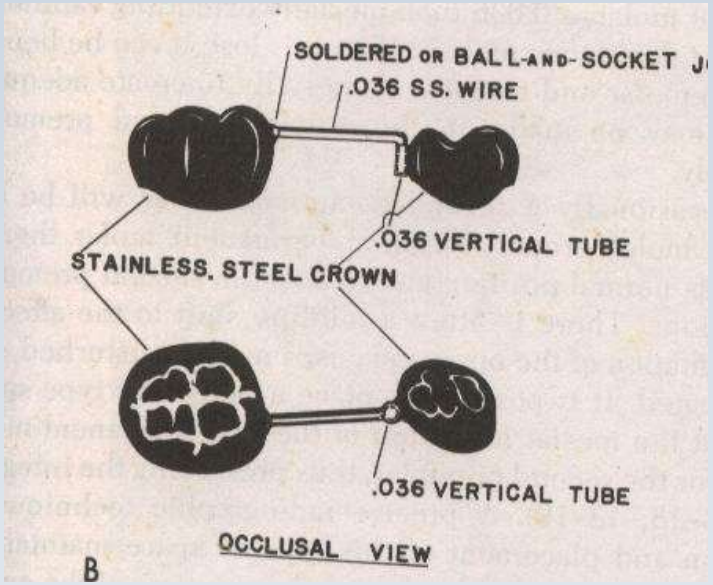
The crown offers better retention

Disadvantages

- The greatest disadvantage of the band and bar is its poor strength
- Occlusal forces acting on the bar may cause a decementation of the bar or failure of the soldered joint.
- The decementation of the appliance may also result in the child swallowing the appliance

BROKEN STRESS FUNCTIONAL SPACE MAINTAINER





Based on the principle of a stress breaker used in prosthodontics

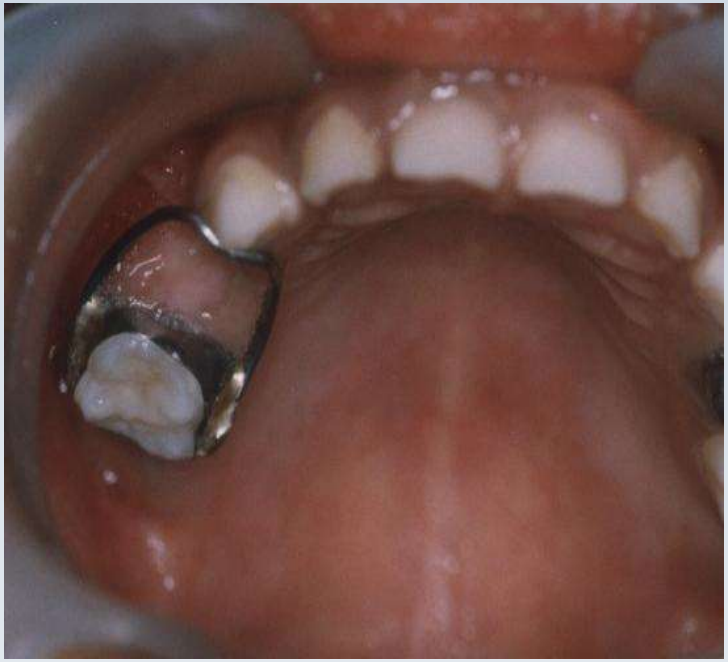
Introduced by Graber

- Alternative to the band and bar
- The appliance consists if a .36 gauge SS wire attached to a vertical tube attachment on one side and either soldered or attached to a ball and socket joint on the other side.
- The stress breaking ability of the receptacle prevents fracture of the wire.

BAND & LOOP SPACE MAINTAINER

INDICATION

- Used to maintain the space of the first primary molar before eruption of the permanent first premolar.
- Also used to maintain the space of either a primary first or second molar after permanent first molar has erupted



DESIGN

- Width of loop should be greater than buccolingual width of the unerupted tooth for which the SM is designed.
- Loop → 1 mm away from the gingiva.
- Band → not impede with occlusion.

ADVANTAGES

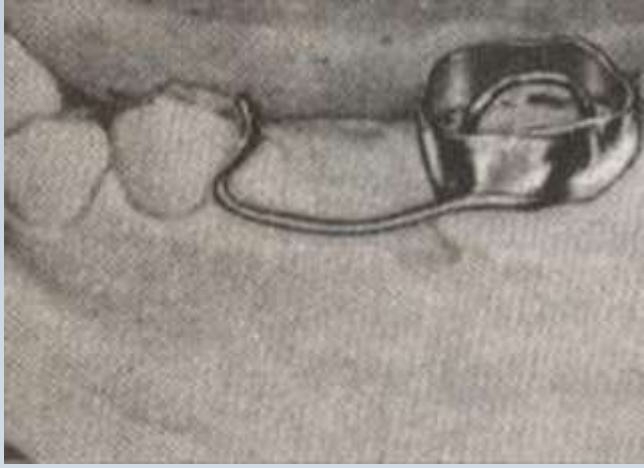
- If used correctly → very effective /useful.
- Easy and economical

- Takes little chair time
- Adjust easily to accommodate the changing dentition.

DISADVANTAGES

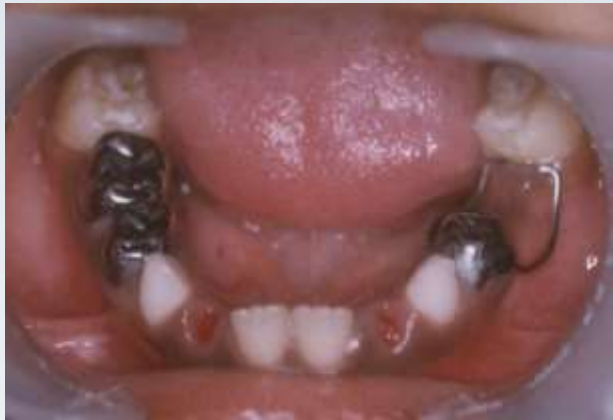
- Difficult to maintain the oral hygiene.
- Difficult to maintain the appliance
- One end is fixed and other end is free, therefore it can come out, easily and child may swallow accidentally.
- Non functional.
- Needs patient co- operation.
- Does not prevent over eruption of opposing teeth.

MODIFICATIONS



1. **MAYNE'S SM :** Loop can be made only one side, but it is less stable. Sometimes an occlusal rest is given on the tooth. This modification is to overcome the disadvantage of the appliance slipping gingivally. But this may hamper the proper eruption of the tooth to its occlusal plane ***(Wright & Kennedy, 1978).***

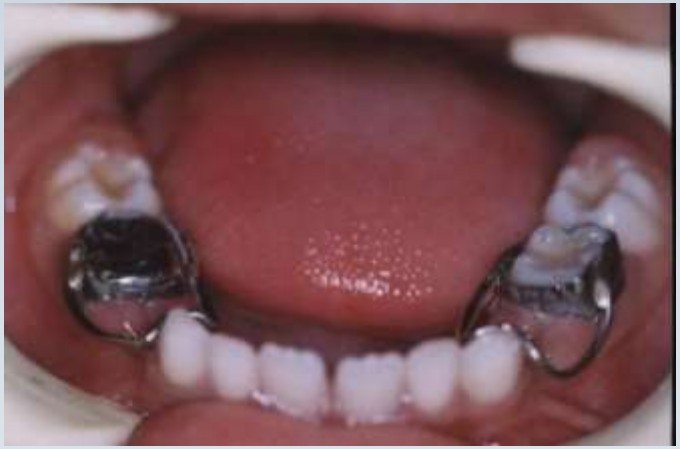
2. **CROWN AND LOOP:** When an abutment requires a crown this appliance may be used.



3. CROWN BAND AND A LOOP

4. REVERSE BAND & LOOP

Banding the first primary molar for guidance. This appliance has been used in cases where the second molar is lost before the complete eruption of the first permanent molar ***(Gellin 1990).***



DISTAL SHOE SPACE MAINTAINER

(Intra Alveolar Appliance / Willett's Appliance / Eruption Guidance appliance /Cantilever type appliance)

- **FIRST REPORTED BY *WILLETS (1932)***
- ***INDICATION : PREMATURE LOSS OF THE SECOND PRIMARY MOLAR, PRIOR TO THE ERUPTION OF THE FIRST PERMANENT MOLAR***

CRITERIA FOR APPLIANCE FABRICATION.

- **WIDTH**

  If not adequate width is provided, the tooth may slip. It should be approximately the width of the contact area.

- **LENGTH OF THE DISTAL EXTENSION**

  Ideally, measure the primary second molar before extraction and remove the same from model.

  If the primary 2nd molar is already missing, a radiographic measurement should be taken between the distal surfaces of first primary molar to the first permanent molar.

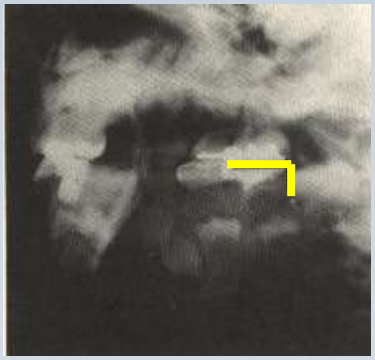
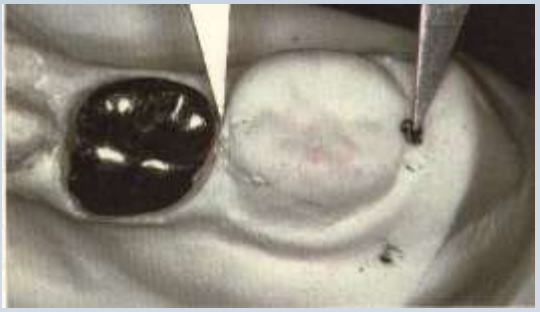
  The the best way is to measure M.D width of the 2nd primary molar on opposite side.

- **DEPTH OF GINGIVAL EXTENSION**

  The depth of the intra gingival extension should be about 1 to 1.5 mm below the mesial marginal ridge of the molar or just sufficient to " capture" its mesial surface as the tooth erupts and move forward .

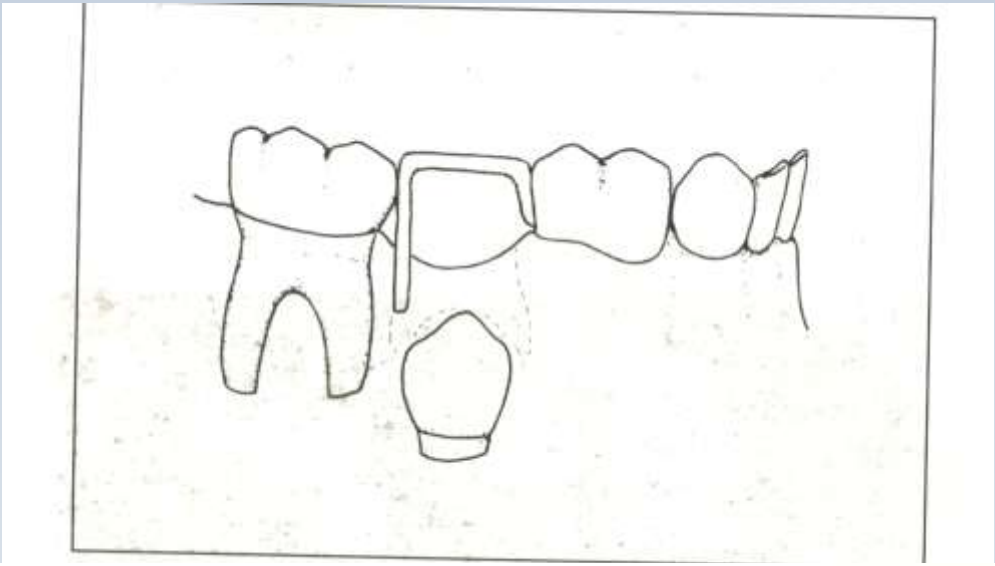
Fabrication of the distal shoe

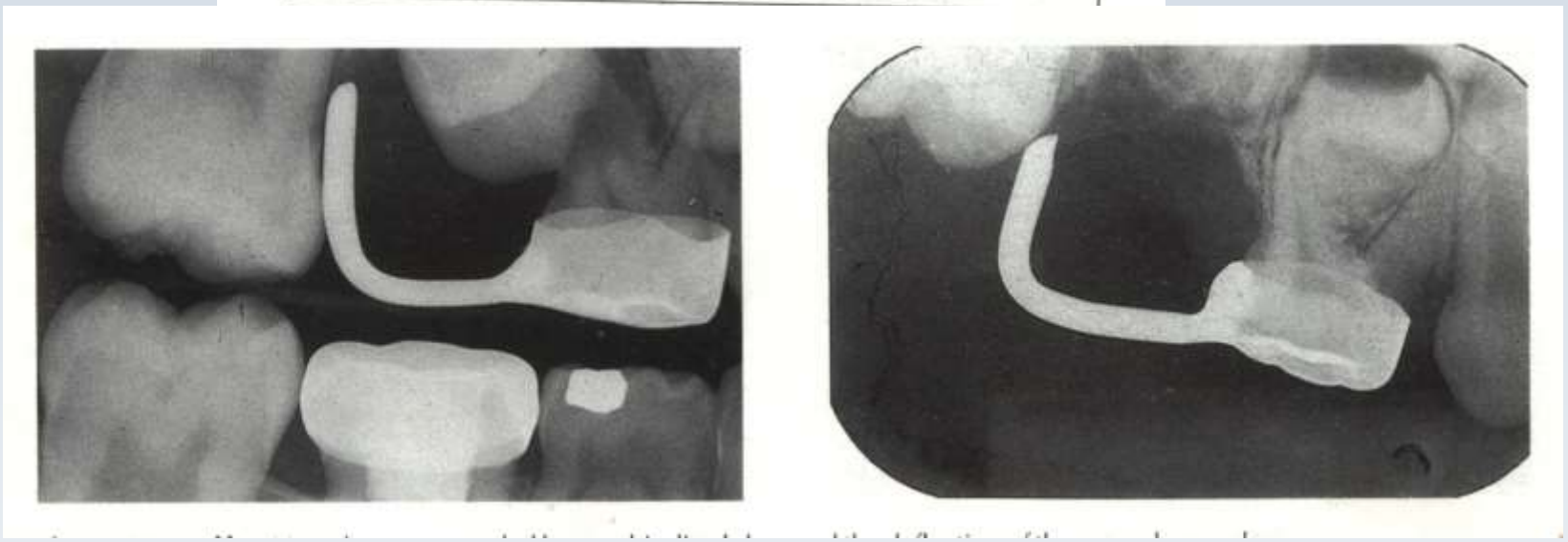
- Direct method
- Indirect method
- Use of band instead of crown- Graber advocates the use of band rather than a crown so as to facilitate the removal of the appliance and its replacement after the complete eruption of the tooth.







CONTRA INDICATIONS

LOCAL FACTORS

- Several teeth missing resulting in lack of abutments to support a cemented appliance
- Poor oral hygiene
- Lack of patient and parent co -operation

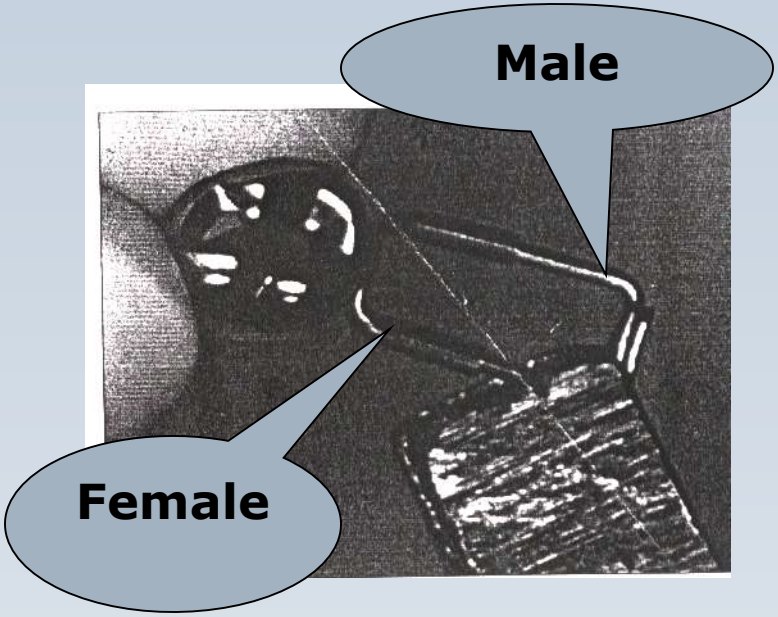
SYSTEMIC FACTORS

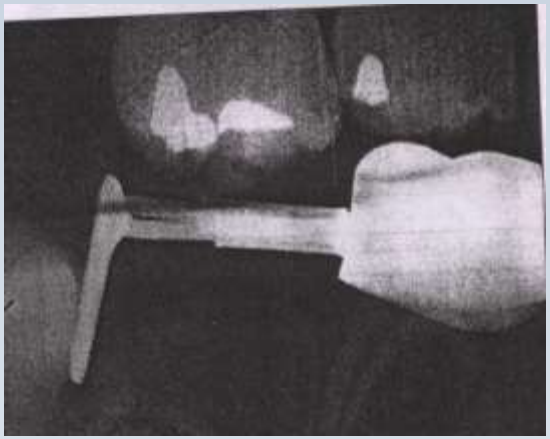
- Congenital heart defects
- Blood dyscrasia
- History of rheumatic fever
- Diabetes
- Generalized debilitation
- Infective endocarditis.

- Mayhew M, Dilley G, Dilley D et al (1984)- Studied the response of the gingival tissue to an intra-alveolar appliance in monkeys. They found that the appliance never becomes histologically integrated with the gingival tissue and that the presence of such an appliance will always prove to be a source of irritation.

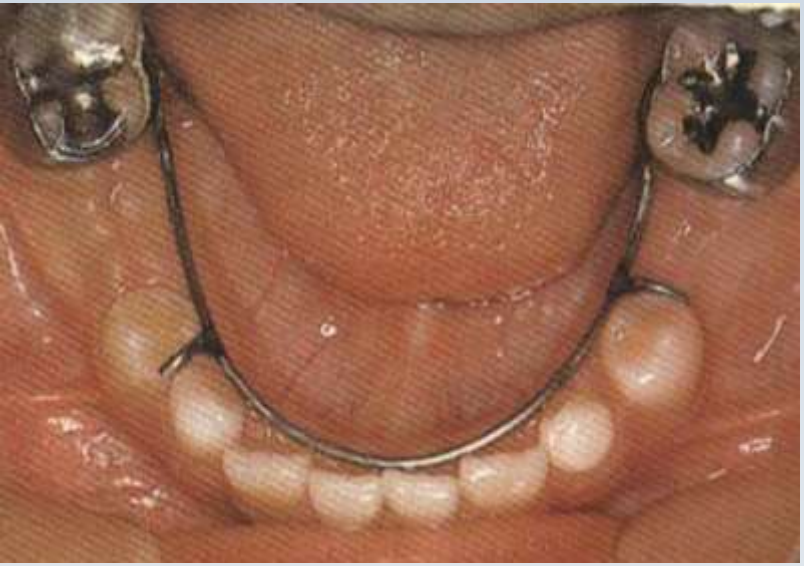
Modifications of the Distal shoe

- Use of bands instead of crowns
- Pinkham – the use of the band makes it easier to replace the appliance with a band and loop after the eruption of the permanent molars
- Graber and Croll(1968) advocated the use of a male and female receptacle in order to facilitate the adjustment of the space maintainer in the oral cavity.


Male
Female



LOWER LINGUAL HOLDING ARCH (LLHA)

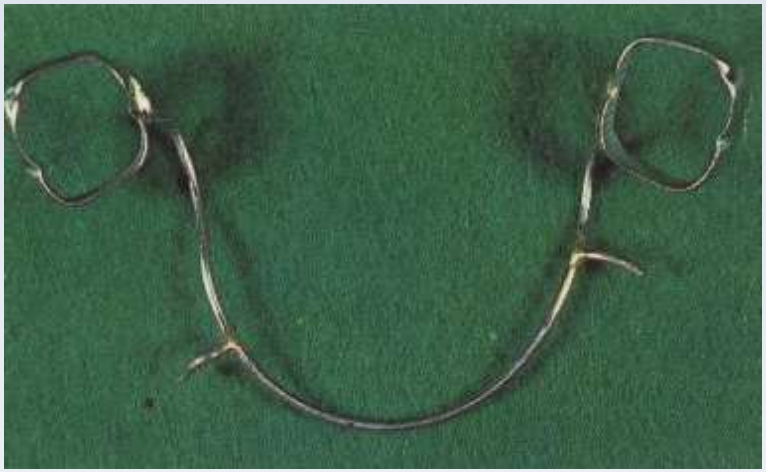


INDICATION

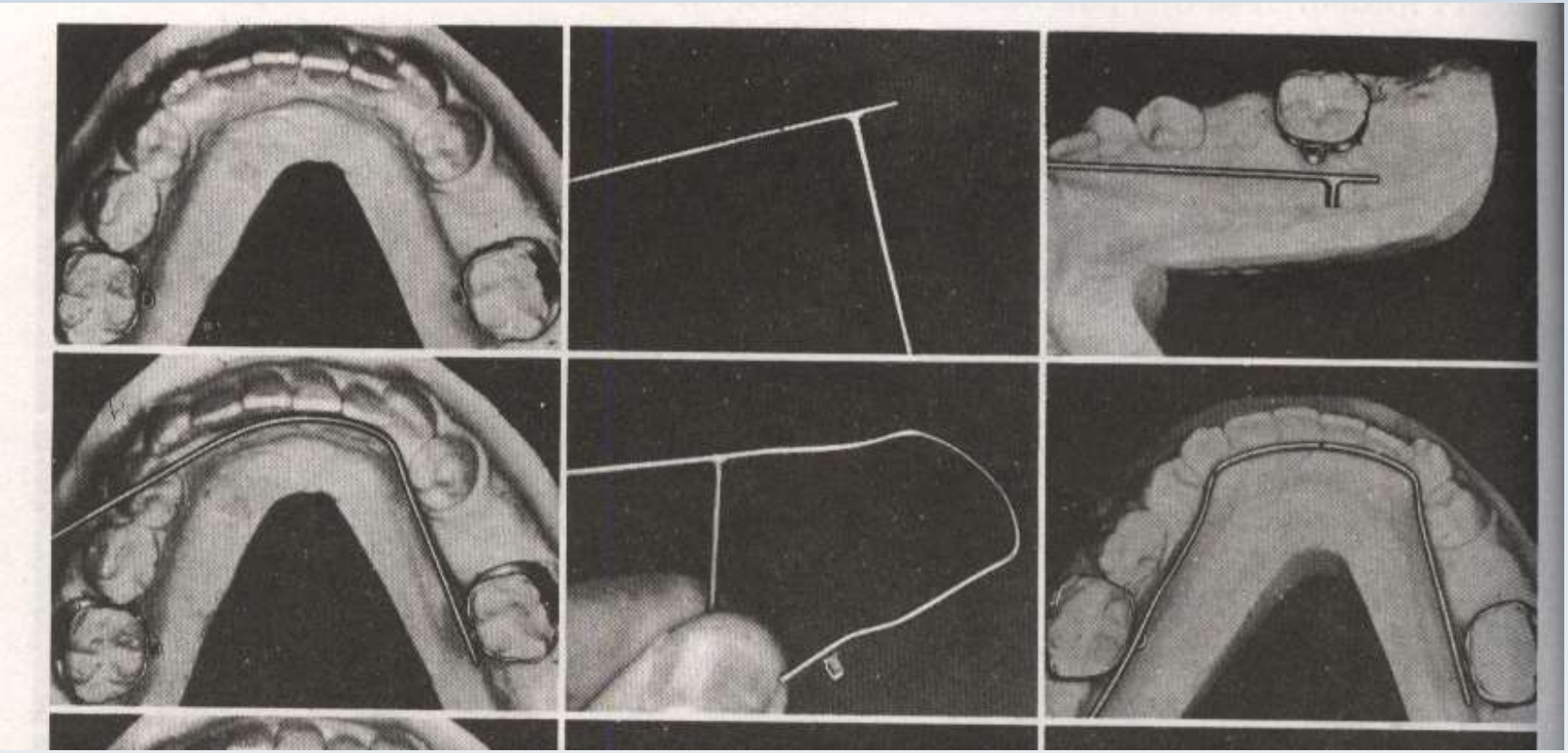
When multiple primary posterior teeth are missing bilaterally in the same arch and the primary incisors have erupted.

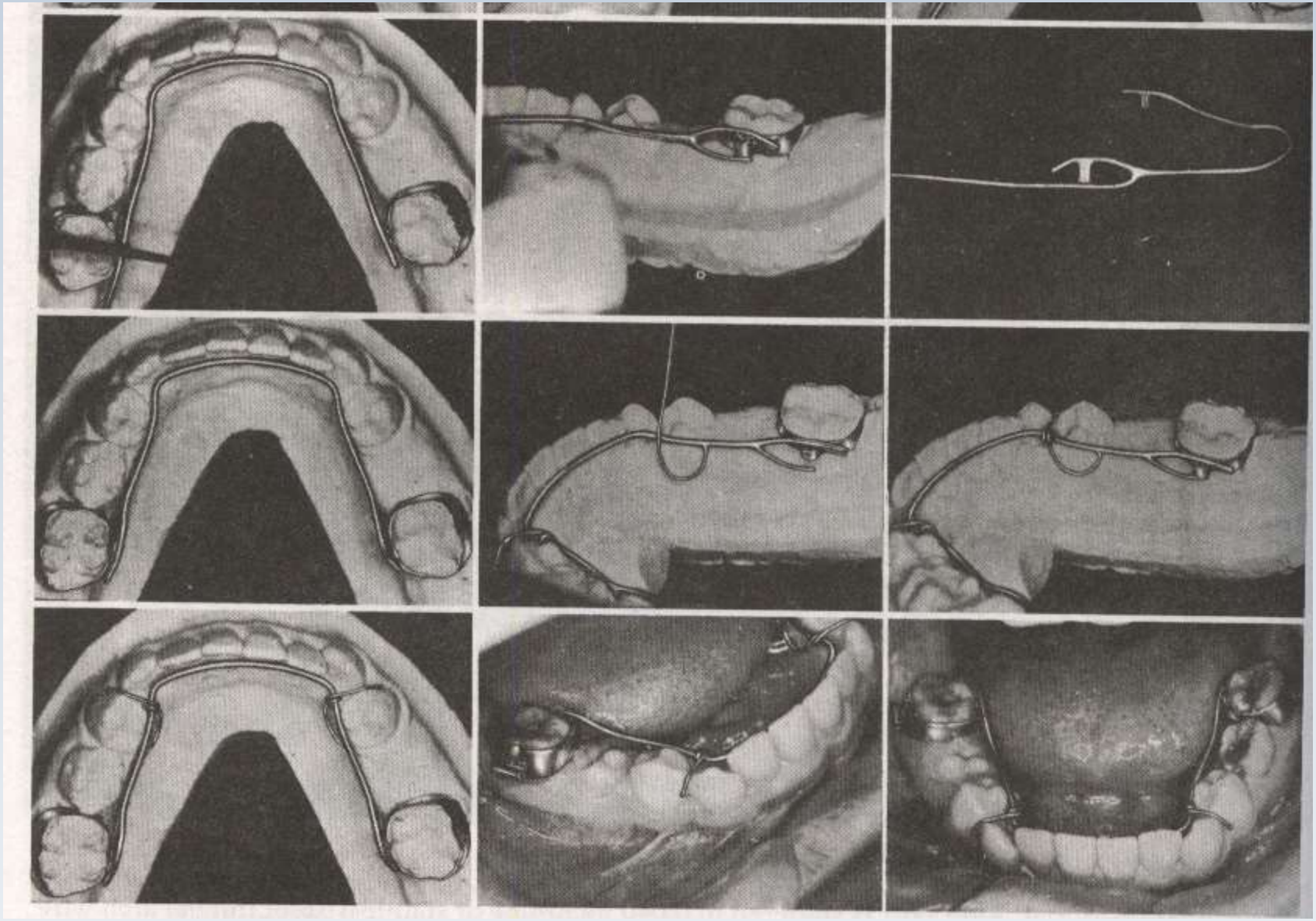
Because the permanent incisor teeth buds develop and erupt somewhat lingual to their primary precursors a conventional mandibular lingual arch is not recommended in the primary dentition. The wire resting adjacent to the primary incisors may interfere with the eruption of the permanent dentitions. Instead bilateral band and loop appliances are recommended in this situation.

- Bands are adapted on the permanent 1st molars.
- A compound impression of entire arch is taken.
- Bands are removed from the teeth and stabilized on the impression and model prepared.
- A SS wire is contoured to the arch extending forward to make contact with the lingual area of the incisions (1-1.5mm above the gingival margin). Lingually 1 mm away from gingival tissue..
- The U- Shaped portion of the lingual arch wire should rest on the cingulum of each mandibular incisor , if possible to prevent the mesial tipping of the mandibular first permanent molars and lingual retrusion of the incisor themselves.



Fixed removable lingual arch





Space maintainers for bilateral tooth loss in the Maxillary region

- The first movement of the maxillary molars is a rotation around the palatal root
- Nance in 1947 postulated that a prevention of this rotational movement will prevent a loss of space

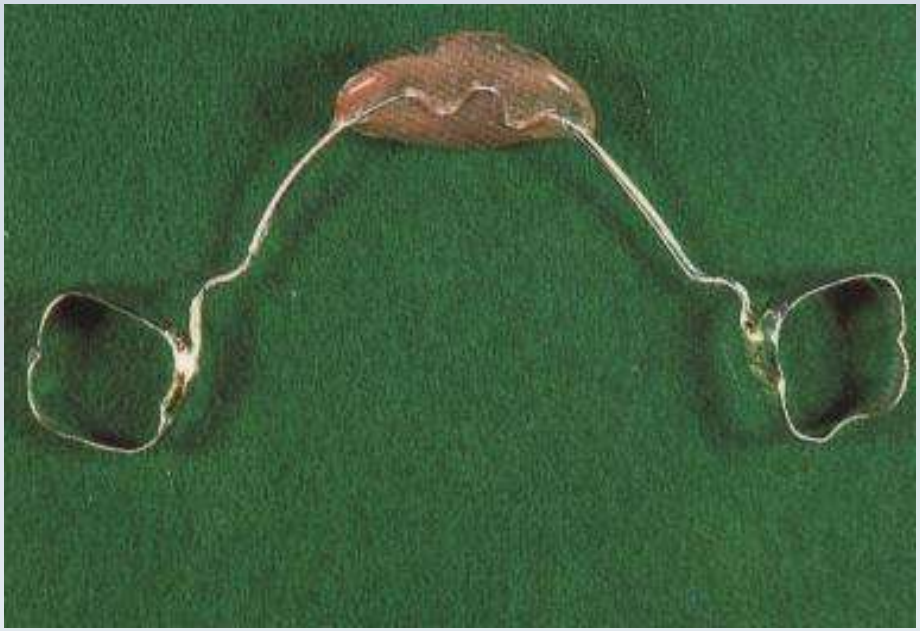
NANCE ARCH/ NANCE SPACE HOLDING APPLIANCE

Fixed non functional, passive maxillary arch appliance.

Nance (1947) → ***"Preventive lingual wire"***

DESIGN

It consists of bands on the upper molars, with the arch wire extending forward into the vault.



TRANSPALATAL ARCH (BAR)

It is used for stabilizing the maxillary first permanent molars when the primary molars require extraction.

DESIGN

SS wire that spans the palate connecting the bands of first permanent molars of one side with the other and closely contouring posterior hard palate.

INDICATION

When one side of the arch is intact and on the other side, several primary teeth are missing

DISADVANTAGES

It can bring about the mesial tipping of the abutment teeth when used in bilateral loss of 2 permanent molars therefore, it must be used if there is one second primary molar present to prevent mesial tipping of molars.

Removal of fixed space maintainers

- The prolonged retention of a space maintainer prevents the full eruption of the tooth beneath it and may deflect the tooth beneath it to the buccal or lingual aspects
- As the tooth to which a cantilever space maintainer becomes loose, its free end traumatises the gingiva mesial to the first permanent molar and can even lead to resorption of the bone on the mesial aspect of the I permanent molar.
- Non functional space maintainers- if not removed will lead to the embedding of the free arm in the interproximal space

Disadvantage of conventional Fixed space maintainers

- Tend to lead to the tipping and rotation of the supporting teeth.
- Cause demineralization at the site of band application
- May require the preparation of the abutment teeth.
- Laboratory procedures increase the time required for fabrication
- Soldered sites may rupture
- Some solders may be cytotoxic
- Banding is not a pleasant experience for the child

Glass fiber reinforced composite resin space maintainer

- everStick® (Stick corporation Turku Finland) and Splint-it(Jeneric-Pentron Wallingford USA)
- Case report- Kargul B et al (JDC 70:3 258 2003)
- Success only over a short period of time. 94% failure over periods over one year. However they found that it was an accept space maintainer for short periods upto 6 months.

Bonded space maintainers

- Swain 1974
- Artun and Metsender(1983) and Santos et al (1993) showed failure in six months.
- Failure caused due to use of conventional composites
- Use of flowable composites- Simsek et al (2004)- success after 18 months follow up. Also found that there is no significant space loss.

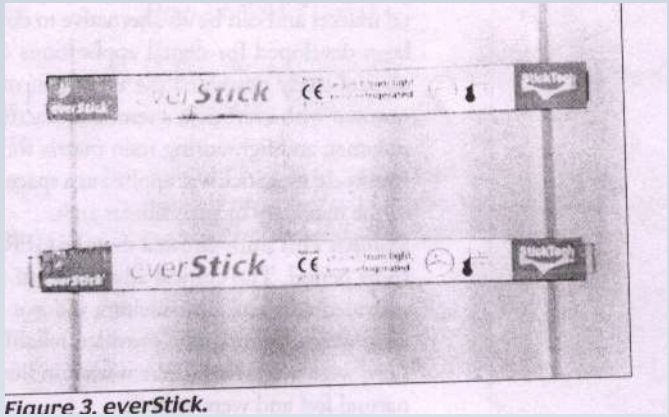
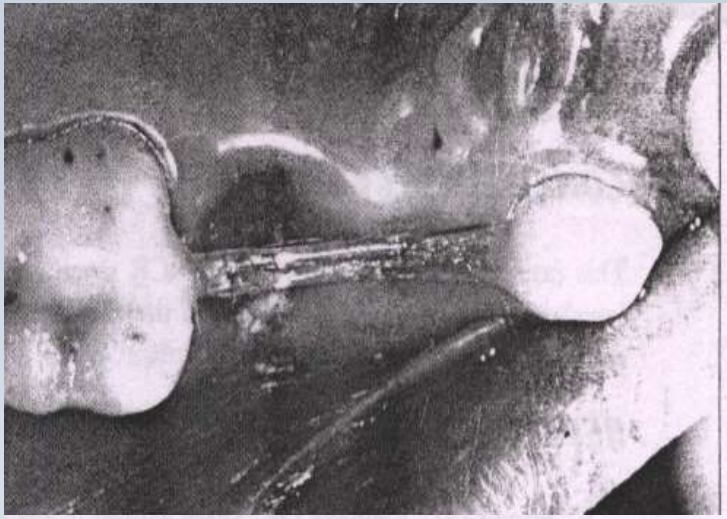
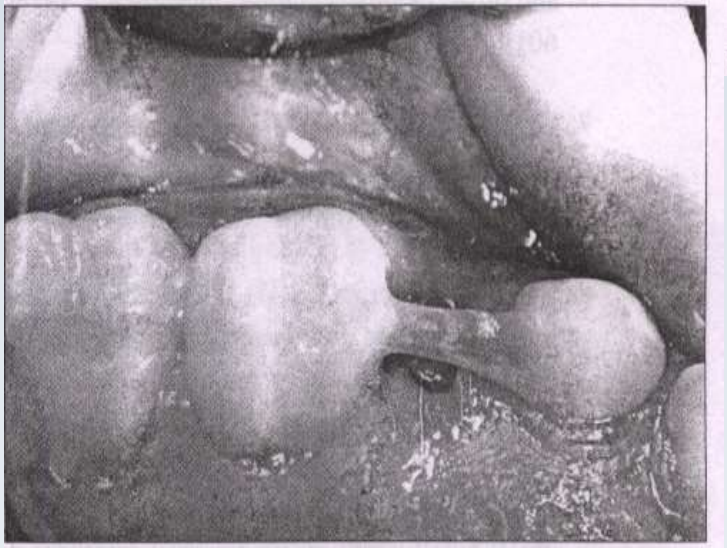
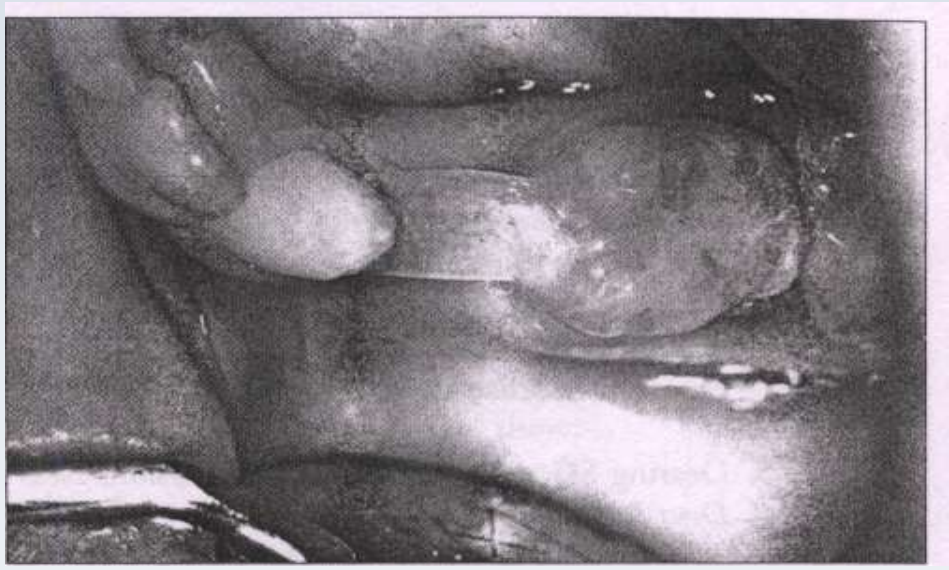


Figure 3. everStick.



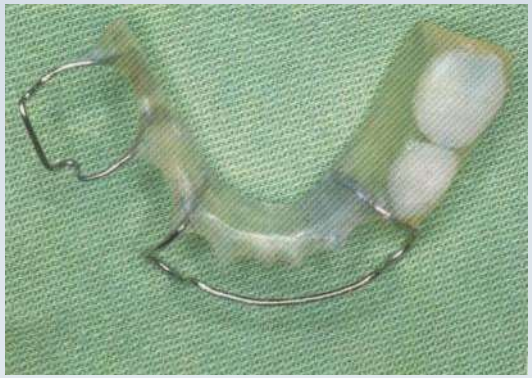




REMOVABLE SPACE MAINTAINER

DEFINITION:

They are appliances which can be removed and reinserted into the oral cavity by the patient.



CLASSIFICATION.

- Functional → Teeth for mastication, speech and esthetics
- Non functional → Acrylic extension over edentulous area

INDICATIONS

- Loss of 2 or more primary molars in a quadrant and the secondary molars (and permanent incisors in mandibular arch) have not yet erupted
- Loss of more than 1 primary tooth bilaterally
- If difficult to adapt bands on teeth that are not fully erupted
- Cleft palate patients requiring obturators
- Loss of anterior teeth → for esthetics.
- When abutment teeth cannot support a fixed appliance

- In cases where supra-eruption has already taken place, a nonfunctional one may be used.
- When restoration of masticatory function is needed.
- When the multiple tooth loss is seen, where fixed appliances may not serve the purpose
- In high-risk cases where child maintenance is poor and fixed appliances are contraindicated

CONTRAINDICATION

- Lack of patient co-operation
- Allergy to acrylic
- Epileptic patients

ADVANTAGES

- Easy to clean and permit maintenance of proper oral hygiene
- Maintain or restore the vertical dimension
- Can be worn part time allowing circulation of blood to soft tissue
- Mastication, esthetics, phonetics
- Checkup for caries detection can be undertaken easily
- Room can be made for permanent teeth to erupt without changing appliance
- .

- They stimulate eruption of permanent teeth
- Band construction is not necessary
- Help in preventing deviation of tongue thrust habit into extraction space

DISADVANTAGES

- Depends entirely on patient co-operation and compliance or can be broken by the patient
- Lateral jaw growth may be restricted, if clasps are incorporated.
- May irritate the underlying soft tissues

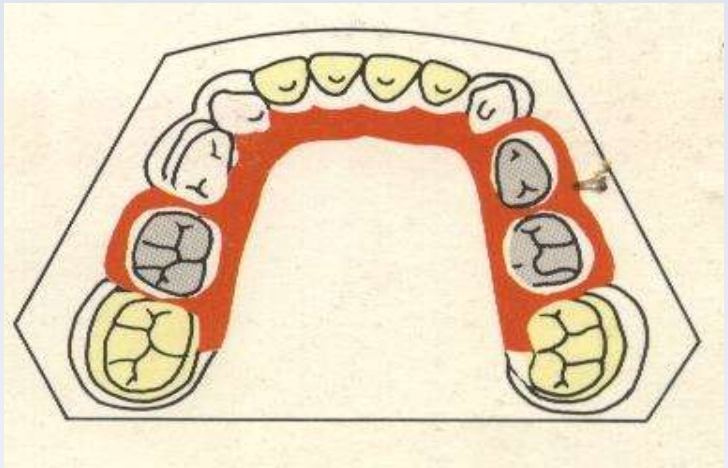
FABRICATION

- Impression and occlusal registration

- Drawing the outline:

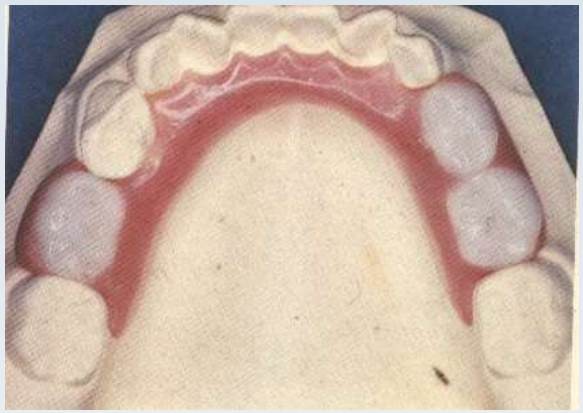
@ Shorter on labial sides and much wider on lingual side. This design takes into consideration the lateral expansion of the jaws and growth, which involves the process of resorption on internal surface and opposition on external surface of the jaws.

@ If there is a tooth present on the distal end of the appliance the distolingual end of the appliance should be extended to the center portion of that tooth. So that the 2nd primary molar or first permanent molar will provide better stability.

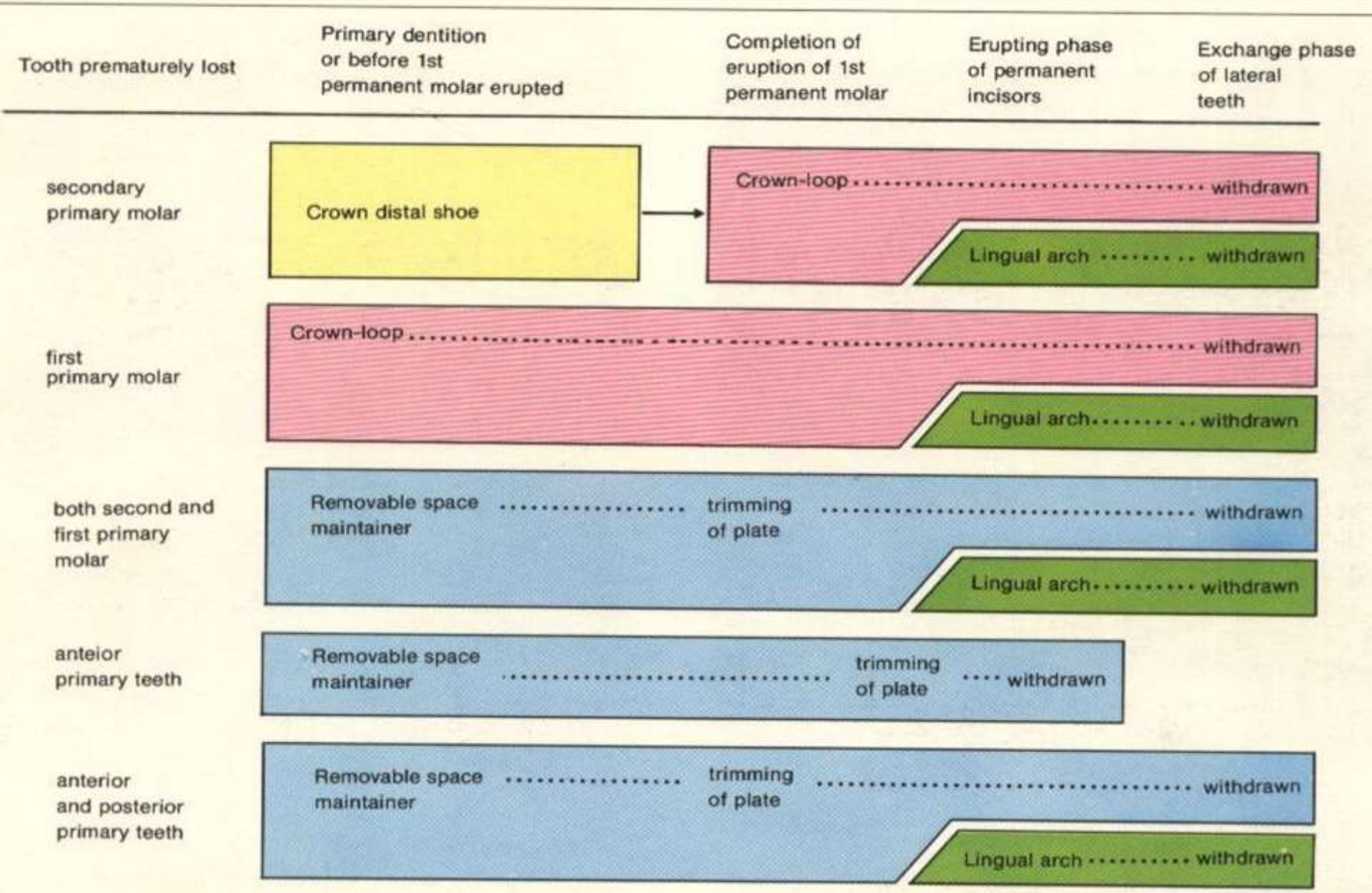


- The anterior lingual aspect of appliance, where it contacts the permanent incisors must be spaced 1-2mm away from the lingual surface, thus avoiding movement of erupting teeth unnecessarily.

- It is usually unnecessary to attach clasps and cribs for stabilizing appliance in cases where there are teeth present on distal end of edentulous saddle. In cases where no tooth exists in the distal end or where there is unilateral loss of primary molar, it is better to enhance stability of appliance by bow and or Adam's clasp.



SELECTION OF SPACE MAINTAINER ACCORDING TO THE PRIMARY TOOTH LOST PREMATURELY AND THE STAGE OF OCCLUSAL DEVELOPMENT



Conclusion

- Space maintainers play a vital role in interceptive orthodontic treatment
- Their use may prevent the development or greatly reduce the treatment of malocclusion
- however failure to monitor them or improper use of an appliance may worsen the situation.
- Space maintainers may be fixed or removable, unilateral or bilateral, functional or non-functional

- the selection of a space maintainer is made keeping in mind several factors including the age of the patient, type of tooth lost, radiographic picture of the developing permanent tooth and the overlying bone and status of the developing dentition.
- The developments made in the fields of composites and bonding have resulted in the introduction of bonded space maintainers and fibre reinforced composite space maintainers.
- For a space maintainer to be successful in interceptive orthodontics requires the dentist to have a sound knowledge of the principles of space management but also requires regular follow-up and recall.


Thank You