

APPENDIX F

DENTAL IDENTIFICATION

Section I.

INTRODUCTION

F-1. General

A dental chart is prepared for each remains. Identification personnel must be able to identify a decedent's teeth according to their anatomical order. Further, they must be able to recognize dental caries, abnormalities, and unusual conditions present. Because correct dental identification may at times be the only positive clue to a decedent's identity, its importance cannot be overemphasized.

F-2. Terminology

a. Deciduous Teeth. The first set of teeth are called deciduous teeth. These teeth are also called temporary, baby, or milk teeth. The 20 deciduous teeth, 10 in each jaw, erupt between the ages of 6 months and 2 years and are lost between the ages of 7 and 14 years.

b. Permanent Teeth. Thirty-two permanent teeth replace the temporary teeth, 16 in each jaw or dental arch. The permanent teeth begin to erupt at age 6 to 7 years and cease with the eruption of the third molars ("wisdom teeth") between the ages of 17 and 21 years. Each tooth is assigned a number to simplify its designation. Under the system used by the armed services, the numbering begins with the upper right third molar and

continues around the upper or maxillary arch from 1 to 16 (fig. F-1). The numbering on the lower or mandibular arch begins with the lower left third molar as 17 and continues to 32 (fig. F-2). The terms left and right refer to those of the decedent.

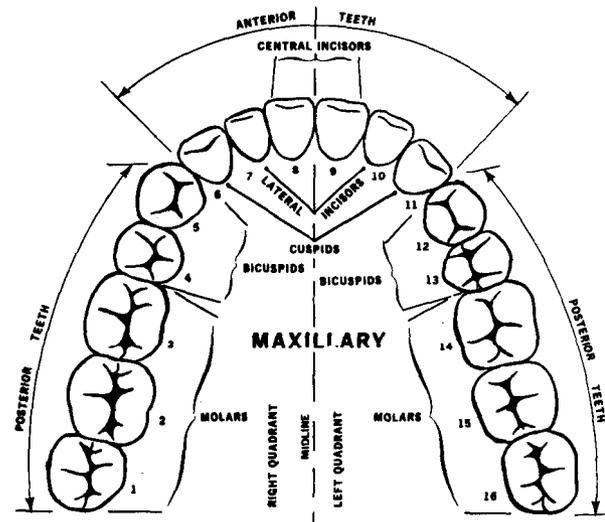


Figure F-1. Maxillary arch.

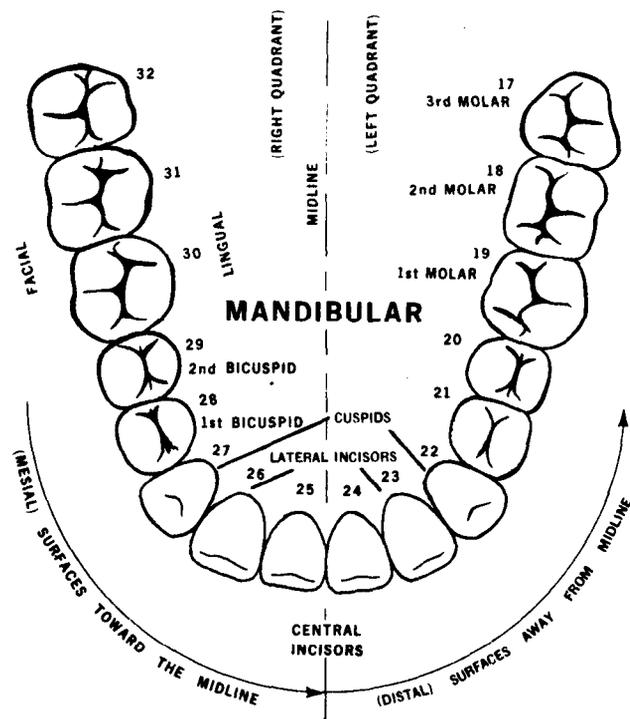


Figure F-2. Mandibular arch.

c. **Crown and Root.** Anatomically, each tooth is divided into two main parts. They are the crown, which is covered by enamel; and the root, or roots, which are covered by cementum and mostly embedded in the bony structure of the jaw.

d. **Neck.** The portion of the tooth where the crown and the root join is commonly referred to as the neck of the tooth; it is about the equivalent of the gum line.

e. **Cusp.** A cusp is a conical or cone-shaped elevation on the occlusal surface of bicuspid and molars and on the incisal edge of cuspids. A cusp may develop from one or more lobes.

f. **Lobe.** The lobe of a tooth is a developmental segment of the tooth. The crowns of teeth develop from either four or five lobes.

g. **Surfaces of Teeth.** The surfaces of teeth are named to indicate the direction each surface faces (fig. F-2). When describing adjoining surfaces of a tooth, combination forms of some of the terms are used. Some examples are: mesiodistal, mesiofacial, mesiolingual, distolingual, and distofacial.

(1) **Mesial.** The mesial surface is the surface of a tooth nearest the midline of the dental arch. On a central incisor, it is the surface which normally contacts the central incisor of the opposite side of the arch.

(2) **Distal.** The distal surface is that surface of

a tooth which is farthest away from the middle of the arch. In deciduous second molars and permanent third molars, it is the surface which faces to the back of the arch.

(3) **Lingual.** This is the surface which faces toward the tongue.

(4) **Facial.** The surface of a posterior tooth which faces toward the cheek or the surface of an anterior tooth which faces toward the lips is called the facial surface. The facial surface of anterior teeth may also be called the labial surface; and the facial surface of posterior teeth may also be called the buccal surface.

(5) **Occlusal.** The occlusal surface is the surface of a posterior tooth which faces toward and contacts the teeth of the opposite jaw. It is the chewing surface of a tooth.

(6) **Incisal (incisal edge).** The surface of an anterior tooth which faces toward and contacts the teeth of the opposite jaw is called the incisal surface. It is the biting or tearing surface.

(7) **Axial.** Any surface which is parallel to the long axis of the tooth is an axial surface. The facial, lingual, mesial, and distal are all axial surfaces.

(8) **Proximal.** The proximal surface is that surface which lies next to another tooth. Most mesial and distal surfaces are proximal surfaces.

h. **Anterior Teeth.** The anterior teeth include the central and lateral incisors and the cuspids. As a group, anterior teeth have single roots and incisal edges or single-cusped crowns ending in narrow edges designed to incise or bite off relatively large amounts of food. They are located in the anterior part of the jaw and are generally aligned to form a smooth curving arch from the distal of the cuspid on one side of the arch to the distal of the cuspid on the opposite side.

i. **Posterior Teeth.** The posterior teeth include the bicuspid and molars. Posterior teeth differ from anterior teeth in that they may have more than one root, they may have multiple cusps forming occlusal surfaces designed to crush and grind food to small parts, and the part of the dental arch which they form has little or no lateral curvature.

(1) **Bicuspid.** Most bicuspid have single roots but may have roots which are partly or completely bifurcated (forked). About one-half of all upper first bicuspid have such bifurcations. As their name implies, most bicuspid have two cusps. The lower second bicuspid may have either two or three cusps; the three-cusped bicuspid has two lingual cusps and one facial or labial cusp.

(2) **Molars.** Molars have four or more cusps, and all are multirouted. The upper molars have

three roots, and the lower molars have two roots. Third molars usually resemble second molars but

are largely unpredictable as to form, size, and number of roots.

Section II.

MAXILLARY TEETH

F-3. General

The maxillary teeth are in the upper jaw or arch. They are numbered from 1 to 16, beginning with the upper right third molar (fig. F-1). The descriptions of the maxillary teeth in this section apply equally to both left and right teeth; however, only the right teeth are illustrated.

F-4. Maxillary Central Incisor

The maxillary central incisor (fig. F-3) is located adjacent to the midline on the anterior portion of the maxillary dental arch. Its mesial surface contacts the mesial surface of the maxillary central incisor of the opposite side.

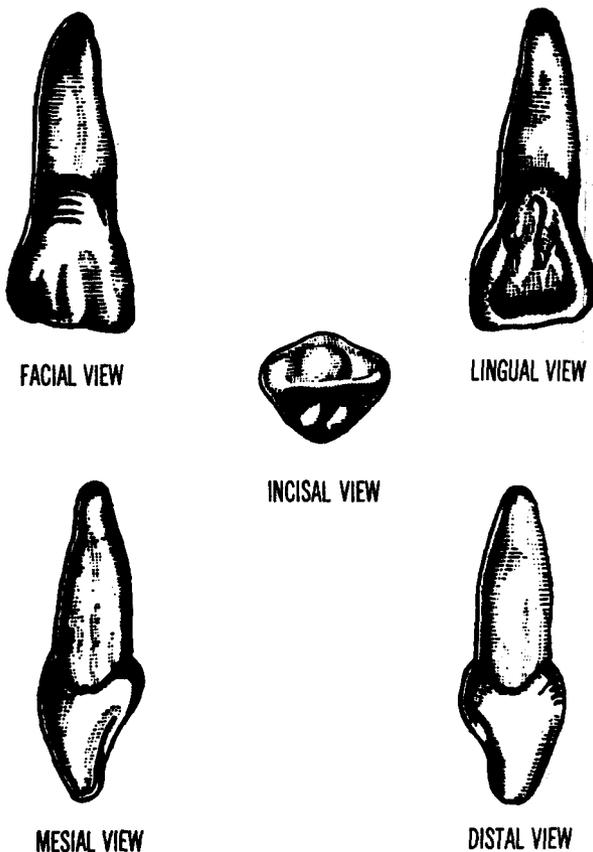


Figure F-3. Right maxillary central incisor.

a. Facial Surface. The facial surface is broad, resembling a thumbnail in outline. Its incisal two-thirds is relatively flat and broad; the gingival (gum line) one-third is more convex.

b. Lingual Surface. The lingual surface is scoop- or shovel-like in appearance and bounded by prominent mesial and distal marginal ridges. The lingual surface is narrower than the facial surface because both proximal surfaces converge toward the lingual.

c. Mesial Surface. The mesial surface is somewhat triangular in shape with the apex of the triangle toward the incisal.

d. Distal Surface. The distal surface is smaller in area but similar in outline to the mesial surface. Its contours are more convex than those of the mesial surface.

e. Incisal Edge. The incisal edge is fairly straight, ending in curved mesio-incisal and disto-incisal angles. The incisal edge is usually worn so that it presents a distinct narrow surface which usually slopes toward the lingual surface.

f. Root. The single root averages about $1\frac{1}{4}$ times the length of the crown. It tapers gradually from about its midsection and ends in a rounded apex.

F-5. Maxillary Lateral Incisor

The maxillary lateral incisor (fig. F-4) is smaller in size and has a more convex crown portion than does the central incisor; however, it has the same general appearance and compares with the central incisor as follows:

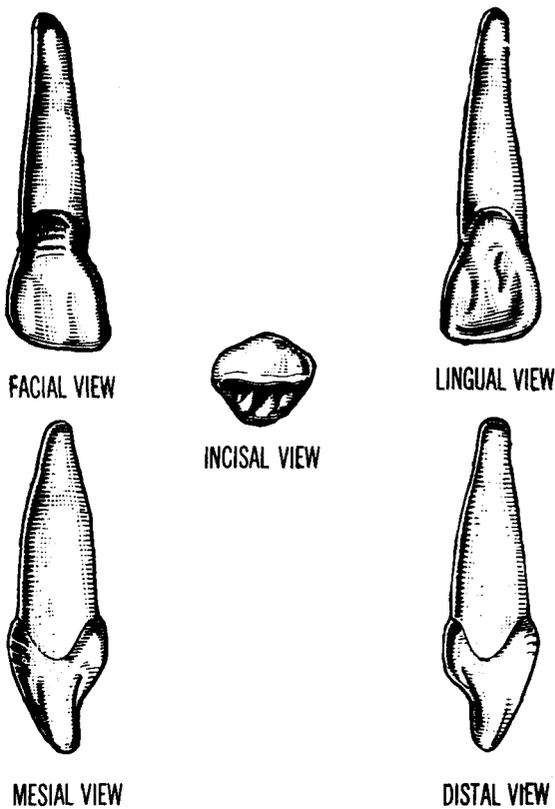


Figure F-4. Right maxillary lateral incisor.

a. **Facial Surface.** The facial surfaces of the lateral incisor and central incisor are similar, but the lateral incisor facial surface is more convex or rounded in form than that of the central incisor.

b. **Lingual Surface.** The lingual surfaces of the lateral incisor and central incisor are similar. The lingual pit (pointed depression) of the lateral incisor is often small, deep, and irregular in shape.

c. **Mesial Surface.** The mesial surface of the lateral incisor is similar to that of the central incisor.

d. **Distal Surface.** The distal surface of the lateral incisor is convex in all directions.

e. **Incisal Edge.** The incisal edges of the lateral incisor and the central incisor are similar. However, the outline of the incisal edge of the lateral incisor has generally greater convexity than does that of the central incisor.

f. **Root.** The single root of the lateral incisor averages about 1½ times the length of the crown. It is smaller than that of the central incisor, but it has a greater relative length in comparison to the length of the crown. Its tip inclines distally.

F-6. Maxillary Cuspid

The maxillary cuspid (fig F-5) is the third tooth

from the midline. It is the longest and the only single-cusp tooth in the arch. Located at the angle between the anterior and the posterior portions of the dental arch, it plays an important role in determining facial features of the individual and in controlling mandibular movements. It is used for tearing food. It is sometimes called the canine or eye tooth.

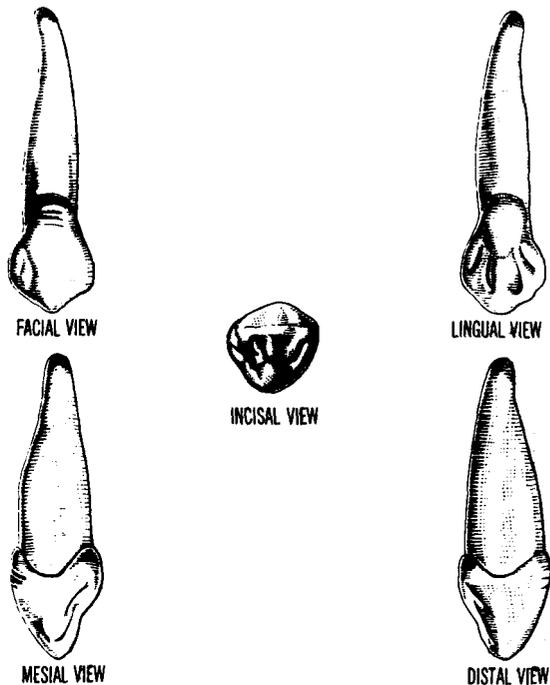


Figure F-5. Right maxillary cuspid.

a. **Facial Surface.** The facial surface is markedly convex in all directions. It has two longitudinal grooves. The middle lobes are developed into a prominent ridge running lengthwise from the cusp area to the bottom third of this surface.

b. **Lingual Surface.** The lingual surface resembles the facial surface in outline but is slightly smaller in area. It has the largest cingulum (bulge of enamel) of all anterior teeth.

c. **Mesial Surface.** The mesial surface is triangular in shape, the apex of which is represented by the incisal edge.

d. **Distal Surface.** The distal surface resembles the mesial surface but is more convex. The distal surface is slightly concave near the gum line (gingival portion).

e. **Incisal Edge.** The incisal edge consists of two sloping narrow surfaces which form a curved angle at the tip of the cusp. The distal slope is longer than the mesial slope.

f. Root. The root, which is about twice the length of the crown, is the longest of all human teeth. The gradual tapering of the root from the crown toward the apex becomes more pronounced in the apical (bottom) third of the root.

F-7. Maxillary First Bicuspid

The maxillary first bicuspid (fig F-6) has the largest crown of the maxillary bicuspid teeth. It is formed from four developmental lobes—three lobes form the facial cusp, and the fourth forms a lingual cusp.

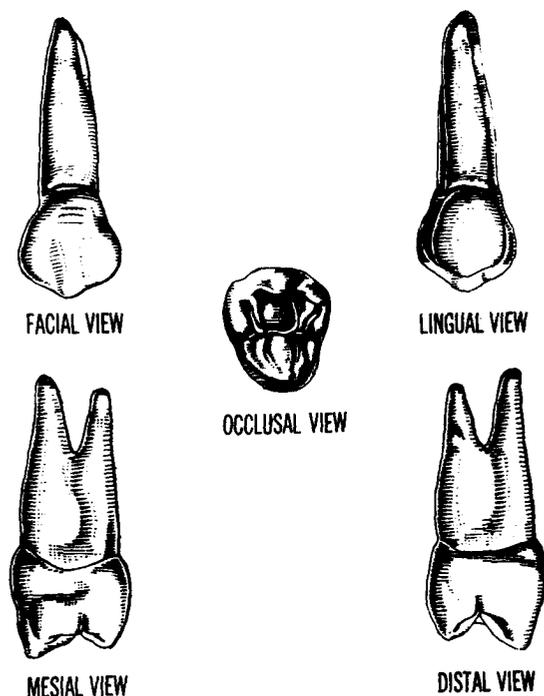


Figure F-6. Right maxillary first bicuspid.

a. Facial Surface. The facial surface resembles that of the cuspid but is not as long or as broad as that of the cuspid.

b. Lingual Surface. The lingual surface is oval in shape and convex in all directions. It is shorter and narrower than the facial surface.

c. Mesial Surface. The mesial surface is roughly rectangular in outline. It is convex in the occlusal two-thirds and concave in the third nearest the gum line.

d. Distal Surface. The distal surface resembles the mesial surface but is slightly more convex.

e. Occlusal Surface. The occlusal surface has

two cusps—the facial and the lingual. The facial cusp is larger and more prominent than the lingual.

f. Roots. In about one-half of all maxillary first bicuspid, the root is bifurcated (forked) to form two roots about one-half to two-thirds of the way from the crown to the apex (bottom) of the root.

F-8. Maxillary Second Bicuspid

The maxillary second bicuspid (fig F-7) is similar to the first bicuspid. It differs from the first bicuspid in the following ways:

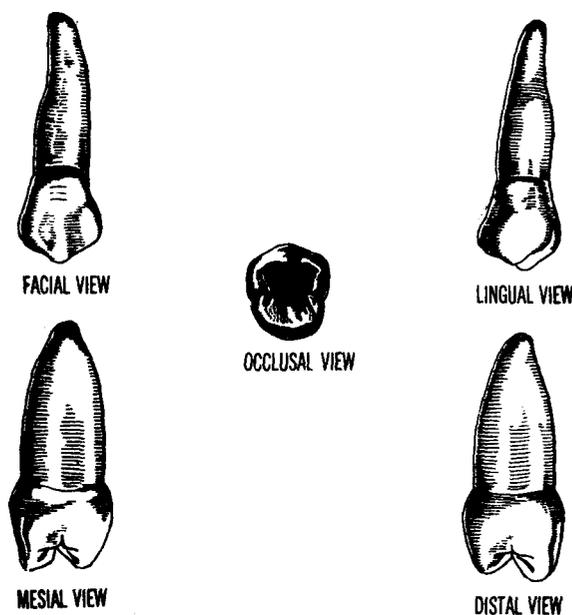


Figure F-7. Right maxillary second bicuspid.

a. It has smaller crown dimensions.

b. The cusps are more nearly the same height.

c. The marginal ridge of the second bicuspid is not divided by a prominent mesiolingual groove.

d. The second bicuspid has a single root which is slightly bulkier than that of the first bicuspid.

e. Contact areas are located slightly closer to the occlusal and facial surfaces than are those of the first bicuspid.

F-9. Maxillary First Molar

The maxillary first molar (fig F-8) is the largest tooth in the mouth. It develops from four lobes and is often called the “6-year molar” because it erupts when a person is 6 years of age.

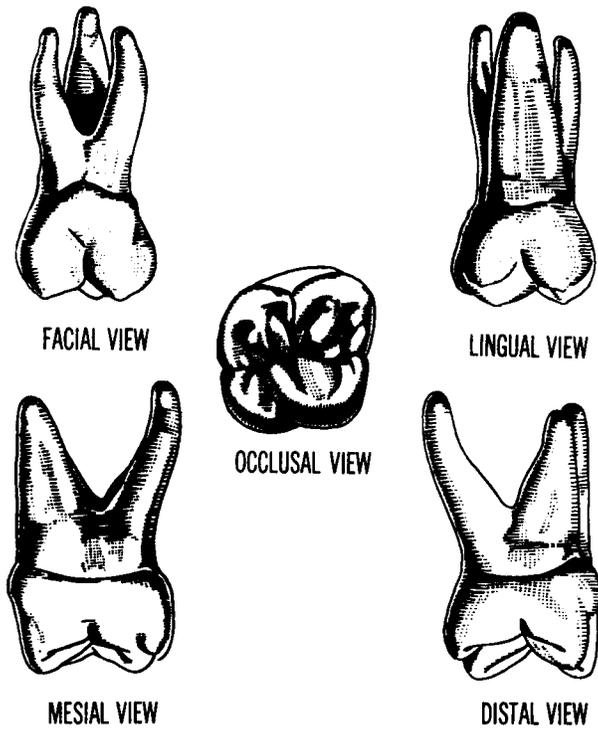


Figure F-8. Right maxillary first molar.

a. **Facial Surface.** The facial surface is convex in all directions. A groove passes vertically from the middle of the facial surface, between the two facial cusps, and onto the occlusal surface. The cusp on the mesial side is higher and wider than the cusp on the distal side.

b. **Lingual Surface.** The lingual surface is more convex and smaller in area than the facial surface. The mesiolingual cusp is larger than the distolingual cusp. An oblique groove passes from the lingual surface, between the two lingual cusps, and onto the occlusal surface. A fifth or rudimental cusp, which develops from the fifth lobe, may be present on the mesiolingual surface. It is called the cusp of carabelli.

c. **Mesial Surface.** The mesial surface is nearly flat in all directions.

d. **Distal Surface.** The distal surface resembles that of the mesial, but it is shorter and more convex.

e. **Occlusal Surface.** The occlusal surface has

four cusps, each of which developed from a single lobe. Three pits are formed on this surface—the mesial, central, and distal.

f. **Roots.** The root divides into three in its cervical third. Each root is named according to its position on the tooth—mesiofacial, distofacial, and lingual. The lingual root is larger and longer than the facial roots, and the mesiofacial root is larger than the distofacial root.

F-10. Maxillary Second Molar

The maxillary second molar (fig F-9) closely resembles the maxillary first molar; however, all dimensions of the second molar are smaller, and the distolingual cusp is proportionally smaller. Also, on the second molar, the fifth cusp is seldom present, and the mesiofacial and distofacial roots are occasionally fused.

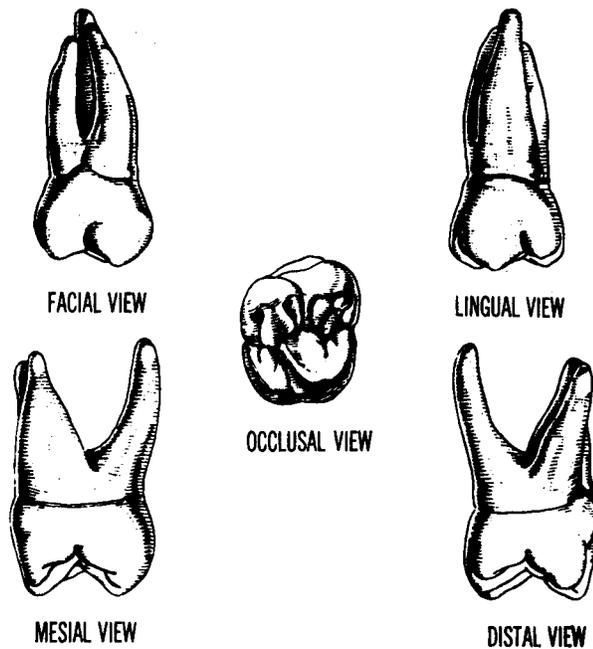


Figure F-9. Right maxillary second molar.

F-11. Maxillary Third Molar

The maxillary third molar (fig F-10) may appear in a variety of forms because the form, size, and number of its roots are unpredictable. In its most common form, it resembles the maxillary second molar, but it is smaller in all dimensions.

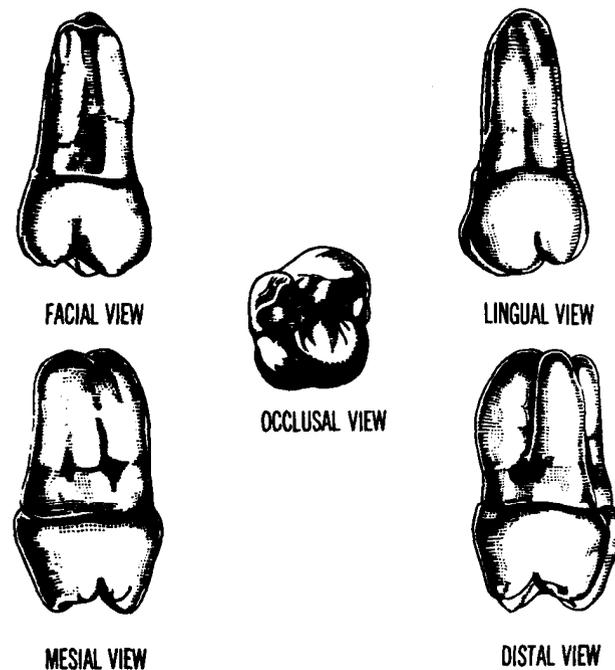


Figure F-10. Typical right maxillary third molar.

Section III.

MANDIBULAR TEETH

F-12. General

The mandibular teeth are in the lower jaw or arch. They are numbered from 17 to 32 beginning with the lower left third molar (fig F-2). The descriptions of the mandibular teeth in this section apply equally to both left and right teeth; however, only the right teeth are illustrated.

F-13. Mandibular Central Incisor

The mandibular central incisor (fig F-11) is located adjacent to the midline in the anterior portion of the mandibular arch. Its mesial surface contacts the mesial surface of the central incisor of the opposite side. It is the smallest and most symmetrical of all teeth.

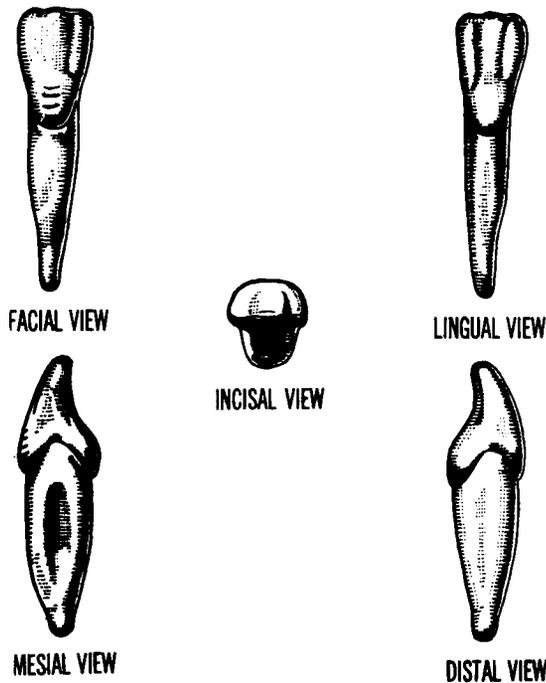


Figure F-11. Right mandibular central incisor.

a. **Facial Surface.** The facial surface is flat in the incisal two-thirds and convex in the bottom (cervical) third. It is widest near the incisal edge which forms a straight line at nearly right angles to the long side and forms slightly acute angles with the mesial and distal surfaces.

b. **Lingual Surface.** The lingual surface is narrower than the facial. The incisal two-thirds is concave and bounded by mesial and distal marginal ridges. In the bottom third or cingulum area, it is convex.

c. **Mesial Surface.** The mesial surface is triangular in shape and is almost flat for its entire length.

d. **Distal Surface.** Except for being slightly more convex, the distal surface closely resembles the mesial surface.

e. **Incisal Edge.** The incisal edge appears slightly curved from mesial to distal. Its thickness increases with wear.

f. **Root.** The single root is narrow mesiodistally but broad faciolingually. The apical portion (tip) may have a slight distal inclination.

F-14. Mandibular Lateral Incisor

The mandibular lateral incisor (fig F-12) resembles the mandibular central incisor; however, it is slightly larger in all dimensions and less sym-

metrical in outline than is the mandibular central incisor. The mandibular lateral incisor is also similar, in many respects, to the maxillary lateral incisor.

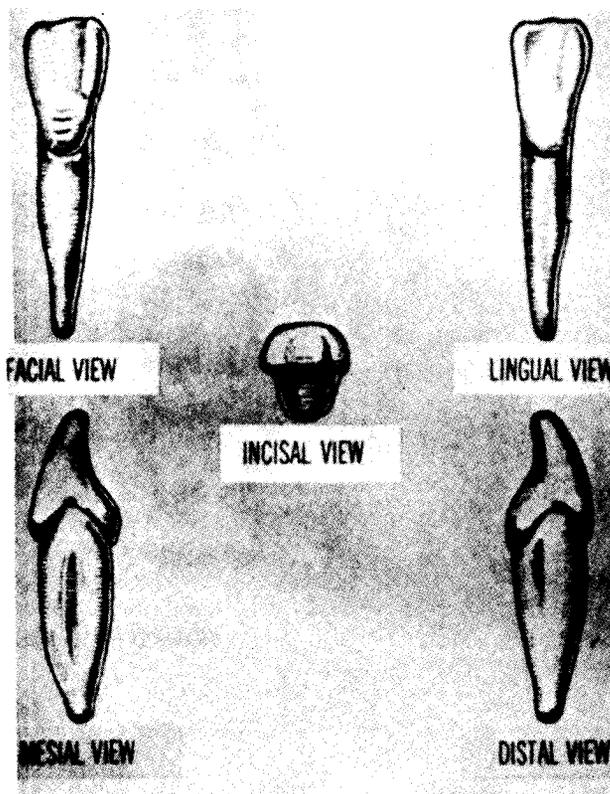


Figure F-12. Right mandibular lateral incisor.

a. **Facial Surface.** From the facial view, the incisal edge slope to the distal surface while that of the central incisor is straight. The mesio-incisal angle is more acute, and the disto-incisal angle is more obtuse and rounded than are those of the central incisor.

b. **Lingual Surface.** On the lingual surface, the marginal ridges and cingulum (bulge of enamel) are slightly more pronounced than are those of the central incisor.

c. **Mesial and Distal Surfaces.** The mesial and distal surfaces closely resemble those of the central incisor.

d. **Incisal Edge.** The incisal edge has more distal curvature than does that of the central incisor.

e. **Root.** The root is a little longer than that of the central incisor.

F-15. Mandibular Cuspid

The mandibular cuspid (fig F-13) is similar in many respects to the maxillary cuspid. Like the upper cuspid, it is long, is firmly anchored in the

alveolar bone (jawbone), and occupies a key position in the dental arch.

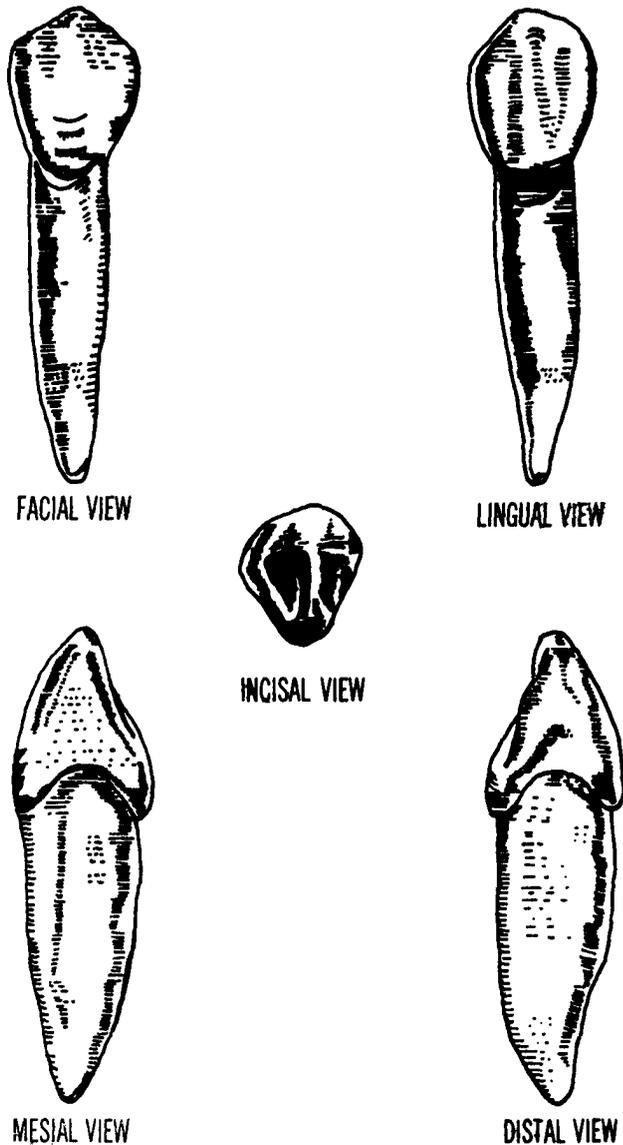


Figure F-13. Right mandibular cuspid.

a. Facial Surface. The facial surface of the mandibular cuspid is narrower than that of the maxillary cuspid, the distal slope of the incisal margin is almost twice the length of the mesial slope, and the mesial margin is almost parallel to the long axis of the tooth. Otherwise, the facial surface of the mandibular cuspid is much the same as that of the maxillary cuspid.

b. Lingual Surface. The lingual surface is narrower but similar in outline to the facial surface. The marginal ridges, the cingulum (enamel

bulge), and the lingual axial ridge are not nearly so pronounced as they are on the maxillary cuspid.

c. Mesial Surface. The mesial surface of the crown is triangular in outline. It is flat, forming an almost continuous flat surface with the root.

d. Distal Surface. The distal surface is smaller in area and much more convex than that of the mesial surface.

e. Incisal Edge. The incisal edge consists of two sloping narrow surfaces forming a curved angle at the tip of the cusp. The distal slope is about twice the length of the mesial slope. The tip of the cusp is located at the junction of the mesial third and the middle third of the crown.

f. Root. The root is shorter than that of the maxillary cuspid and its mesial and distal surfaces are flat. The apical (bottom) portion is usually inclined distally.

F-16. Mandibular First Bicuspid

The mandibular first bicuspid (fig F-14) is the smallest tooth in the bicuspid group. It possesses characteristics of all bicuspids, but it differs greatly in form, particularly when compared to upper bicuspids.

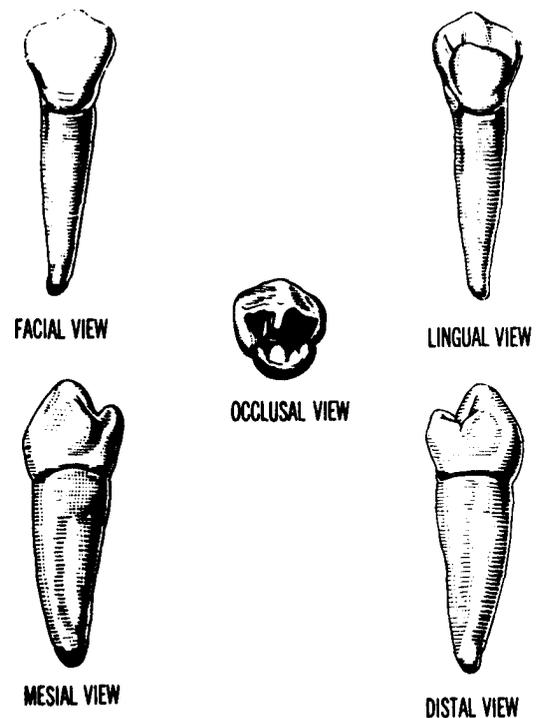


Figure F-14. Right mandibular first bicuspid.

a. Facial Surface. The facial surface is symmetrical in outline and is more convex in all directions than is the facial surface of the

maxillary bicuspid. The convexity gives the crown of the mandibular bicuspid the appearance of an inverted bell. The facial cusp is long and sharp.

b. Lingual Surface. The lingual surface is about half the size of the facial cusp because the lingual cusp is very short and because the mesial and distal surfaces have a marked lingual convergence.

c. Mesial Surface. The mesial surface is convex in all directions. In outline it resembles the mesial surface of a mandibular cuspid with an enlarged cingulum (bulge of enamel).

d. Distal Surface. The distal surface is more convex faciolingually than is the mesial surface.

e. Occlusal Surface. The occlusal surface is round to oval in outline. A well-developed transverse ridge runs from the tip of the facial cusp to the lingual cusp. The facial cusp occupies about four-fifths of the occlusal surface.

f. Root. The single root tapers gradually toward the apex. Near the crown, the root is narrower lingually than it is facially.

F-17. Mandibular Second Bicuspid

The mandibular second bicuspid (fig F-15) is slightly larger, stockier, and less rounded than the mandibular first bicuspid. It is, however, more rounded or oval than the maxillary bicuspids. It may have two or three cusps, the three-cusp form having one facial and two lingual cusps.

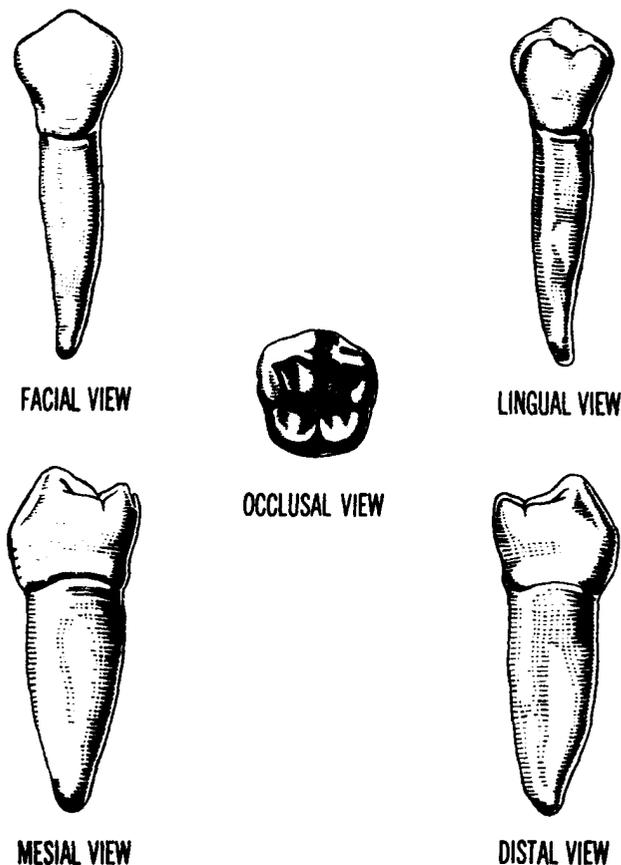


Figure F-15. Right mandibular second bicuspid.

a. *Facial Surface.* The facial surface resembles that of the first bicuspid.

b. *Lingual Surface.* The lingual surface, which is similar in outline to the facial surface, varies somewhat with the number and arrangement of lingual cusps. It is markedly larger than the lingual surface of the mandibular first bicuspid, and the cusp (or cusps) is much larger. When two lingual cusps are present, they are divided by a lingual groove passing from the occlusal onto the lingual surface.

c. *Mesial Surface.* The mesial surface has the form of a lingually inclined parallelogram. The surface is convex with a shallow concavity sometimes present in the cervical area.

d. *Distal Surface.* The distal surface resembles the mesial surface but is slightly more convex.

e. *Occlusal Surface.* The outline form varies with the number of lingual cusps. With a single lingual cusp, the outline form is similar to that of the first bicuspid. With two lingual cusps, the outline form is broader and more nearly rectangular toward the lingual. With a two-cusp tooth, the occlusal surface resembles that of a maxillary bicuspid. With a three-cusp tooth, a prominent lingual groove passes from the occlusal surface, between the lingual cusps, and onto the lingual surface.

f. *Root.* The single root is longer and larger than that of the first bicuspid. Most of the taper is confined to the apical (bottom) third.

F-18. Mandibular First Molar

The mandibular first molar (fig F-16) is the largest tooth in the mandible. It has five functional cusps, each of which develops from a separate lobe. The maxillary and mandibular first molars are often called "6-year molars" because they erupt when a person is 6 years of age.

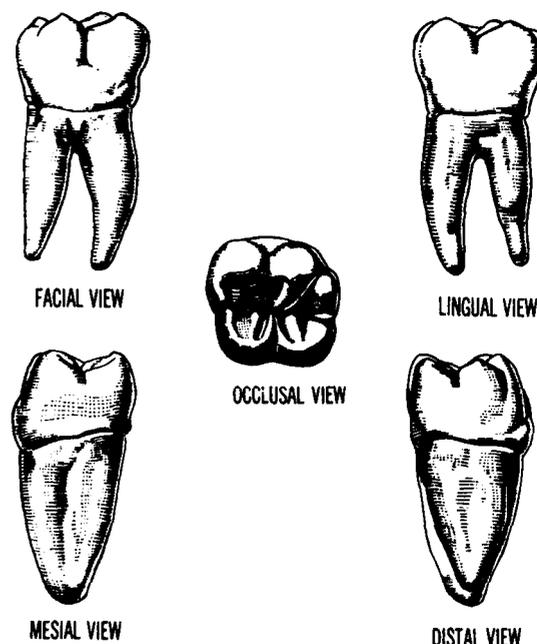


Figure F-16. Right mandibular first molar.

a. *Facial Surface.* The facial surface is convex in all directions. A facial groove and a distofacial groove are continuations of grooves from the occlusal surface which end on the facial surface. Its occlusal margin is made up of six slopes, two for each of three facial cusps.

b. *Lingual Surface.* The lingual surface is smaller than the facial surface. Its occlusal margin is formed by the four slopes of the two lingual cusps. A distinct lingual groove, which is continuous from the occlusal surface, ends in the middle third of the surface.

c. *Mesial Surface.* The mesial surface has the form of a lingually inclined parallelogram. It is flat in appearance with its greatest convexity in the occlusal third.

d. *Distal Surface.* The distal surface is similar in all directions. It is smaller in area than the mesial surface.

e. *Occlusal Surface.* The occlusal surface is characterized by the presence of a fifth cusp, the distal cusp, which is smaller than the other cusps and forms part of the masticating surface of the tooth. Three grooves, the facial, distofacial, and lingual, are mentioned in the descriptions of the facial, distofacial, and lingual, are mentioned in the descriptions of the facial and lingual surfaces (a and b above). Other grooves are a central groove and mesial and distal developmental grooves. The mesial groove runs from the central fossa (pit) over the mesial marginal ridge. The distal groove runs from the central fossa over the distal marginal ridge.

f. *Root.* The root is divided into mesial and distal roots with the bifurcation located nearer the crown than is the bifurcation of any of the other teeth. Both roots are wide faciolingually and narrow mesiodistally. The mesial root is larger than the distal and commonly has a distal inclination near its tip. The distal root may have a similar curvature but usually is straight.

F-19. Mandibular Second Molar

The mandibular second molar (fig F-17) is smaller than the lower first molar but is similar in general appearance. The second molar usually has four cusps, but occasionally there are five arranged similarly to those of the lower mandibular first molar. The second molar is sometimes called the 12-year molar.

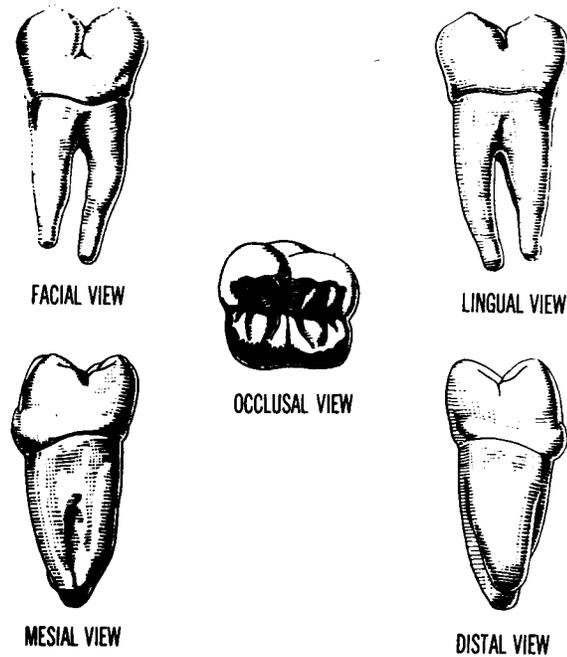


Figure F-17. Right mandibular second molar.

a. *Facial Surface.* The facial surface is rectangular in shape and convex in form. Its occlusal margin consists of the slopes of two similarly shaped cusps separated by a facial groove, which is a continuation of a groove from the occlusal surface. The groove ends at the middle of the facial surface. The mesial cusp is slightly larger than the distal cusp.

b. *Lingual Surface.* The lingual surface

resembles that of the mandibular first molar. The lingual groove, which is a continuation of the lingual groove of the occlusal surface, ends at the middle of this surface.

c. Mesial Surface. The mesial surface is similar in outline to that of the mandibular first molar but is more convex in all directions.

d. Distal Surface. The distal surface is similar to the mesial surface but is smaller in area and more convex.

e. Roots. The tooth has two roots which resemble but are less divergent than those of the mandibular first molar. Both roots present a distal inclination.

F-20. Mandibular Third Molar

The mandibular third molar (fig F-18) is commonly known as the wisdom tooth. It may appear in any of a wide range of forms, sizes, and shapes. Typically, it resembles either the first or second mandibular molar (more often the latter) but is smaller in its overall size.

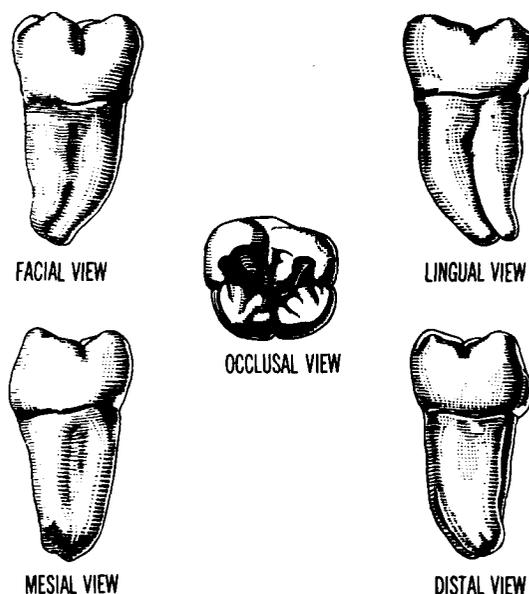


Figure F-18. Right mandibular third molar.

Section IV.

CARIES AND ABNORMALITIES

F-21. General

Identifying dental caries (cavities) and abnormalities is an important phase in the final identification of deceased personnel. Both caries and abnormalities must be charted accurately to compare them with the decedent's dental chart (SF 603 (Health Record-Dental)). The dental examining mirror provided with the fingerprint identification kit should prove helpful.

F-22. Caries

Dental caries, or dental decay, is a disease which, if untreated, involves progressive destruction of the tooth enamel and opens the way for bacteria to enter and infect other tissues of the teeth. Although caries may be found on any part or surface of a tooth, they occur mainly on hard-to-brush areas. The first visible sign of a caries is a slightly whitened area in the enamel. The area is easily overlooked when the enamel is wet but will stand out when it is dry. The caries develops from the whitened area and varies in size from that of a pinhole to a hole that covers a large percentage of the tooth area. When a caries is no longer decaying, it is yellowish brown or black.

F-23. Abnormalities

The dental abnormalities described in this paragraph are those that have been caused by nature or neglect. Excluded are the caries described in paragraph F-22 and the appliances and restorations described in paragraphs F-24 through F-27. Other abnormalities that may appear in or about a decedent's mouth, such as cankers and sores on gums and lips and diseases of the mouth, are not described.

a. Erosion. Erosion is the chemical wearing away of the tooth structure. It appears on the external surface at the neck (gum line) of the tooth. Where erosion is present, the enamel is usually hard and shiny. In some cases, the crown may almost be severed from the root.

b. Abrasion. Abrasion is the wearing away of tooth structure through mastication (chewing of food), sharp particles, incorrect toothbrushing, or friction of clasps holding a partial denture.

c. Mottled Enamel. When the tooth enamel is spotted with white flecks or blotches because of excess fluorine, it is said to be mottled.

d. Enamel Hypoplasia. Enamel hypoplasia is a

defect in the enamel which varies from shallow depressions or grooves to deep grooves or pits running in horizontal rows across the crown. A birth defect, scarlet fever, or measles may be the cause of the defect.

e. Fracture of Tooth. Where the enamel, dentin, and pulp are chipped away or broken, the condition is referred to as a fracture of a tooth. Such a condition does not have to include all surfaces but primarily includes the facial, lingual, incisal, occlusal, and either the mesial or distal surfaces.

f. Fracture of Enamel. The condition of a tooth in which only part of the enamel is chipped away, not the entire tooth area (dentin and pulp), is referred to as a fracture of enamel.

g. Rotation. A rotated tooth is one that is

twisted in such a way that one or more of its surfaces are not in their proper location. For example, the distal surface faces the distal rather than the mesial surface of its neighboring tooth.

h. Malocclusion. Malocclusion is the improper interlocking of the upper and lower teeth.

i. Abnormal Interdental Spaces. Where an unusually large gap occurs between two teeth, it is referred to as an abnormal interdental space. A missing or a rotated tooth or the natural spacing between the teeth occurring in a particular jaw can be the reason for abnormal interdental spaces.

j. Irregularity of Alinement. Irregularity of alinement is the condition in which one or more teeth protrude either facially or lingually because they have grown in improperly.

Section V.

RESTORATIONS

F-24. General

Dental restorations are broken down into three categories: temporary restorations, permanent restorations, and prosthetic appliances.

F-25. Temporary Restorations

Temporary restorative materials are used on deciduous (baby) teeth and for emergency and temporary work on permanent teeth. The following materials are used to fill cavities, cement crowns, and cap teeth:

a. Gutta-Percha. Gutta-percha is a widely used pink or gray rubberlike substance used as a temporary filling and as a root-canal sealer. It is easy to manipulate and does not dissolve in oral fluids.

b. Temporary Stopping. Temporary stopping is used primarily in filling deciduous teeth. It does not wear as well as gutta-percha and will dissolve in oral fluids.

c. Zinc Phosphate. Zinc phosphate is used to cement crowns and to restore nonstress-bearing parts. It is seldom used in areas subject to masticating stresses and abrasion. The color of the material can be made to match the color of the repair tooth.

d. Copper Phosphate. Copper phosphate can be either red or black and is used primarily on posterior deciduous teeth.

e. Zinc Oxide. Zinc oxide is used primarily for emergency filling of advanced caries and fractured enamel and for temporarily cementing crowns and some appliances. Zinc oxide is low in strength and has poor resistance to abrasion.

f. Aluminum Crown. An aluminum crown may

be either a dull or shiny gray temporary cap used on a tooth prepared for a permanent full crown.

F-26. Permanent Restorations

Permanent restorative materials are those substances that will last as long as the natural tooth, if not longer, if proper dental hygiene procedures are followed.

a. Amalgam. Amalgam is a very durable alloy of silver, tin, and mercury. About 80 percent of all permanent restorations are made of amalgam. This gray filling material is used on the posterior teeth, primarily on the occlusal surface. However, it is also used on anterior teeth on all surfaces except the facial.

b. Silicate Cement. Silicate cement is the least permanent of the permanent restorative materials as it will dissolve in oral fluids. It is used on nonstress-bearing parts of anterior teeth or on other teeth where appearance is important. Silicate cement is translucent and can be made to match the tooth being restored.

c. Porcelain. Porcelain is a very durable translucent material used for jacket crowns, inlays, and denture bases. Porcelain can be made to match the color of the tooth being repaired.

d. Gold. Because of its softness, gold by itself is a poor restorative material. However, as an alloy, it becomes a very durable material. Because of its high cost, gold is an unusual restorative. Five forms of gold are used in restoring teeth.

(1) *Casting gold.* Casting gold is used to fabricate various restorations in three consistencies: soft, for nonstress-bearing parts; medium, for ordinary inlay work; and hard, for

crowns and abutments. Casting gold can be whitened by adding palladium, platinum, or silver.

(2) *Gold alloy solder*. Gold alloy solder is used for joining the parts of fixed bridges, building up or forming restorations, and other repairs.

(3) *Wrought gold*. Wrought gold is used to construct clasps and other appliances.

(4) *Gold foil*. Gold foil is used to restore tooth structures, particularly on facial and occlusal surfaces.

(5) *Gold plate*. Gold plate is seldom used but may be used in a crown or for repairing a hole in a crown.

F-27. Prosthetic Appliances

Complete and partial artificial dentures make up the great bulk of dental prosthetic appliances. A complete denture replaces the entire complement of teeth in an arch. A partial denture usually refers to a removable appliance which replaces less than the full complement of teeth in one arch. On the other hand, a bridge refers to a fixed partial denture that replaces one or more teeth and which cannot be removed by the bridge wearer.

Section VI.

DD FORM 891 (RECORD OF IDENTIFICATION—DENTAL CHART)

F-28. Preparation of DD Form 891

Completing DD Form 891 is relatively simple but completing it to show an exact picture of a decedent's dentition is a painstaking task. At times, the DD Form 891 is referred to as the "tooth chart" to keep it from being confused with SF 603. When the DD Form 891 is completed, it is compared with the decedent's SF 603 if it is available.

a. Last Name-First Name-Middle Initial (or Unknown Number). Fill out this block first as you begin to make the dental identification to insure that the form is being used with the correct remains. The sample in figure F-19 shows the unknown number as well as the BTB (believed-to-be) designation.

b. Grade. If known, fill in the grade of the deceased. If not known, write in Unknown or Unk.

c. Service No. /Social Security Account No. If known, fill in the social security number of the deceased. If not known, enter Unknown or Unk.

d. Name of Cemetery, Evacuation Number, or Search and Recovery Number. In this block, enter the name of the unit that is processing the remains. If the unit is a CIL, enter the CIL case number.

e. Plot, Row, and Grave. Complete the Plot, Row, and Grave blocks only if the remains has been or is going to be interred in a temporary military cemetery. If not, enter NA in each block.

f. Marking Abbreviations. Printed in the DD Form 891 are the marking abbreviations that are used on the form. Three others are temp (temporary), alum (aluminum), and cem (cement). If other materials are used in the decedent's teeth that are not covered in the list of abbreviations, note them in the Caries and Restorations blocks on the chart and under Remarks on the reverse of the form.

g. Caries. In the Caries block for the proper tooth, enter the abbreviation for the surface or surfaces which have caries. For example, tooth No. 7 in figure F-19 shows a caries on the facial surface while No. 12 has one on the distal surface.

h. Restorations. In the Restorations block for the proper tooth, enter the abbreviation for the surface or surfaces involved in the restoration and the material used. For example, tooth No. 1 in figure F-19 shows an amalgam filling on the facial, occlusal, and distal surfaces; tooth No. 4 has two amalgam fillings on the lingual surface. Do not record dentures in the Restorations block.

i. Abnormalities. Under the heading "The following conditions will be indicated if present" note any abnormality (para F-23) by placing an X in front of the item. Describe each abnormality under Remarks on the reverse of the form.

j. Prepared By and Verified By Blocks. The Prepared By and Verified By Blocks at the bottom of the form are self-explanatory.

k. Dentures. In the Dentures block on the reverse of the form (fig, F-20), enter None if the decedent has no dentures. If the decedent has dentures, describe them to include the number designations of natural teeth replaced and those which have retaining clasps. Also, include any numbers or letters that appear on the dentures. Typical entries are given in the Dentures block (fig, F-20).

DENTURES (Plates): DESCRIBE DENTURES INCLUDING NATURAL TEETH REPLACED AND TEETH WHICH HAVE RETAINING CLASPS. (For example: Lower Acrylic Partial Denture with Lingual Bar, replacing Teeth nos. 17, 18, 19, 30, 31, 32. Clasps on natural teeth nos. 20 and 29) SHOW ANY NUMBERS OR LETTERS APPEARING ON DENTURE.

Full upper denture with palatal plate replaces teeth Nos. 1-16.

Fourteen false teeth made of porcelain held in place by acrylic palatal plate.

Bridge replaces tooth No. 31; held in place by 3/4 gold crown on natural teeth Nos. 30 and 32. Artificial tooth made of porcelain and gold.

Removable partial denture replaces teeth Nos. 20, 23, 24, 25, and 26; with artificial teeth made of porcelain and acrylic; held in place by a lingual bar attached by hooks or clasps on natural teeth Nos. 19 and 28. A saddle rests on the occlusal surface on No. 19.

REMARKS (If no abnormalities are found make notation to that effect)

Unusual appliance; bridge held in place by 3/4 gold crowns; replaces tooth No. 31.

Tooth No. 23 fractured.

Retained deciduous tooth No. 4.

Tooth No. 5 rotated.

Tooth No. 7 unerupted.

Supernumerary tooth above No. 10.

Teeth Nos. 18-22 irregularly alined.

Tooth No. 29 has gold filling.

Mottled enamel on teeth Nos. 22, 23, and 30.

EXAMPLE METHOD OF PREPARATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
UPPER RIGHT																	UPPER LEFT
	1. D-AM	2. DOL-AM; F-AM	3. MOD GOLD FILL	4. F-GOLD FILL; NL-AM	5. MO-AM	6. NL-GOLD FILL	7. 3/4 GOLD CR	8. D-PORC FILL	9. PORC-CR	10. F-PORC FILL; L-AM	11. MF-PORC FILL	12. PX-POSTHUMOUSLY MISSING	13. GOLD-CR	14. MISSING	15. MO-AM; L-AM	16. MODL-AM	

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Figure F-20. DD Form 891 (Record of Identification—Dental Chart) (reverse).
 (Figure F-20 is not a continuation of the chart shown in F-19 because ~)

l. Remarks. Under Remarks (fig, F-20), enter None if no abnormalities are present. Otherwise, describe abnormal conditions and note any gold fillings found. If any indication of a disease is found in the decedent's mouth, it should be noted and a medical officer should be called on to identify it.

m. Example Method of Preparation. The block at the bottom on the reverse of the form shows how the caries and restorations diagrams are blacked out and the appropriate abbreviations for them are entered. The three surfaces of each tooth shown are the facial (nearest the tooth number), the occlusal, and the lingual.