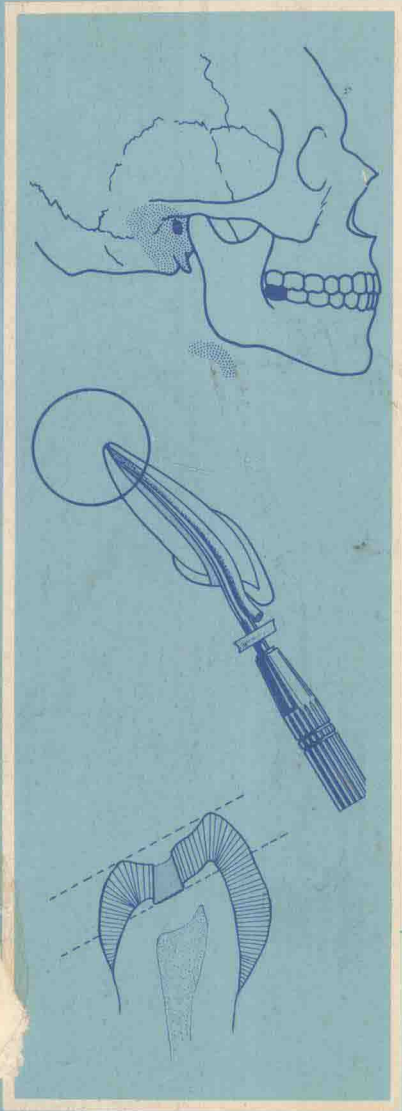


# a comprehensive review of dentistry



**BOUCHER**

a  
**comprehensive  
review  
of dentistry**

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**ORAL DIAGNOSIS AND TREATMENT PLANNING**



# PREFACE

The purpose of this book is to provide useful and substantive information in a concise and retrievable manner. It is a convenient reference for those preparing for State, Regional, and National Board Examinations. The book tests the student's knowledge, reinforces what he knows, and imparts new knowledge.

The format utilizes a programmed learning approach supplemented when appropriate with selected illustrations. The questions were carefully selected so that only the critical material was included. If the reader can answer a question it means that he has a general understanding of the subject matter up to the level of that question. The reinforcing statement provides additional information and helps the user remember and understand the material better.

The use of multiple-choice, true-false, and completion type questions is most appealing to today's student. Also it prepares the student by asking the type of question found on board examinations. The answers placed beside each question provide immediate feedback. The student should cover the answer, read the entire question, and attempt to complete it before looking at the answer. The reader should not try to guess the correct response or memorize the answer. In learning, one must absorb the fact or proposition and measure it against the formal rules of logic and evidence — in short, to carry on a mental debate before answering the question. Each time one recalls the correct answer, comprehension of the subject is enhanced. If there is any material that is unfamiliar, the reader should go back to the literature and study those areas.

All teachers have favorite areas in their disciplines and are prone to emphasize these areas. Sometimes this happens to the detriment of other areas. National Board Examinations test students from all regions of the country; and these students are taught by a variety of educators. Therefore, a concerted effort was made to correctly weight the different areas of each discipline so that each area received the proper amount of emphasis.

The contributors to the text are all leaders in their fields and are sensitive to changes in their disciplines. I appreciate and am thankful for their contributions. I was also pleased with the cooperative assistance of the staff of the W. B. Saunders Company.

LOUIS J. BOUCHER

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# ANATOMY

# 1

MELVIN MOSS, D.D.S., Ph.D.

## QUESTIONS

## ANSWERS

The old Indian technique of "scalping" used the anatomical fact that a separation of the external scalp layers is easily accomplished between:

- (a) The outer plate of calvarial bone and its periosteum
- (b) The skin and its subjacent dense connective tissue layer
- (c) The dense connective tissue and the aponeurosis of the fronto-occipitalis muscle
- (d) the aponeurosis and the calvarial periosteum
- (e) none of the above

(d) There is a loose connective tissue layer between the aponeurosis and the periosteum. It is the same plane that usually contains hemorrhagic fluids or pus.

Sensory innervation to the scalp is accomplished by branches of all the following nerves *except*:

- (a) supraorbital nerve (first ophthalmic, division of V)
- (b) lesser occipital nerve (C-2)
- (c) suboccipital nerve (C-1)
- (d) greater occipital nerve (C-2)

(c) The posterior primary ramus of C-1, the suboccipital, has only motor fibers. The scalp innervation is divided between branchiomeric (trigeminal) and somatic segmented nerves (cervical plexus) by an intertragal line crossing over the scalp at the approximate location of the coronal suture.

The contents of the carotid sheath include all of the following *except*:

- (a) vagus (X) nerve
- (b) common carotid artery
- (c) internal jugular vein
- (d) cervical sympathetic chain

(d) The sympathetic chain is posterior (dorsal) to the sheath, while the rami of the ansa cervicalis lie anterior (ventral) to the sheath.

Nodding the head (the "yes" motion) occurs at the:

- (a) atlanto-occipital joint
- (b) atlantoaxial joint
- (c) intervertebral articulations between all cervical vertebrae
- (d) it is a combination of (a) and (c)
- (e) it is a combination of (b) and (c)

(a) Shaking the head (the "no" motion) would be indicated by answer (e).

## QUESTIONS

## ANSWERS

The mandibular division of the V (trigeminal) nerve:

- (a) exits from the skull through the foramen ovale
- (b) contains both afferent and efferent nerve fibers
- (c) supplies the "muscles of mastication" as well as the mylohyoid muscle and the anterior belly of the digastric muscle, among others
- (d) enters the mandible through the mandibular foramen and has an exit at the mental foramen
- (e) all of the above are correct

The primary neurons responsible for taste in the anterior two-thirds of the tongue are located in the:

- (a) otic ganglion
- (b) submandibular ganglion
- (c) geniculate ganglion
- (d) gasserian (semilunar, trigeminal) ganglion
- (e) ciliary ganglion

The pterygopalatine fossa connects directly to which of the following?

- (a) the nasal cavity
- (b) the orbital cavity
- (c) the oral cavity
- (d) the middle cranial fossa
- (e) all of the above are correct

The articulation between the two parietal bones is called the \_\_\_\_\_ suture. The articulation between the two pubic bones is an example of the amphiarthrosis, while the temporomandibular joint is an example of the third type of bony articulation, which is a \_\_\_\_\_.

The twelve cranial nerves can be functionally divided into three groups: 1. nerves of special sense; 2. nerves of somatic segmentation; 3. nerves of branchiomeric segmentation. For each of these three groups list the cranial nerves comprised by each group.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

Considering the answer to the previous question, list the nerves that supply:

- (a) the intrinsic laryngeal muscles \_\_\_\_\_
- (b) the intrinsic muscles of the tongue \_\_\_\_\_
- (c) the temporalis muscle \_\_\_\_\_
- (d) the mucosa of the posterior third of the tongue \_\_\_\_\_

(e) Only the mandibular division of V contains motor fibers. It is the post-trematic branch of this nerve of the first branchial arch.

(c) Taste from this tongue region is carried by the chorda tympani nerve, a branch of VII. This same nerve carries preganglionic parasympathetic axons that are destined to synapse in the submandibular ganglion.

(e) The passageways, respectively, are 1. the sphenopalatine foramen; 2. the inferior orbital fissure; 3. the greater and lesser palatine foramina; 4. the pterygoid canal.

Sagittal; diarthrosis. The three types of bony articulations illustrated above are synarthrosis, amphiarthrosis, and diarthrosis, respectively.

The nerves of special sense are I, II, VIII; the nerves of somatic segmentation are III, IV, VI, XII; the nerves of branchiomeric segmentation are V (first arch), VII (second arch), IX (third arch), X–XI (fourth and sixth arches; there is no fifth arch in humans).

The intrinsic laryngeal muscles are supplied by the superior and inferior laryngeal nerves (branches of X). Nerve XII innervates the tongue musculature, which is of somatic origin as are the extrinsic muscles of the globe (the four recti, two obliques, and the levator palpebrae superior). All "muscles of mastication," are innervated by the trigeminal (V, mandibular division) nerve. Branch IX (glossopharyngeal) innervates the mucosa of the posterior third of the tongue for both general sensation and taste.

## QUESTIONS

## ANSWERS

The modiolus (of Lightoller) is a common point of insertion of many muscles of facial expression, among which are all of the following *except*:

- (a) obicularis oris
- (b) buccinator
- (c) posterior belly of the digastric
- (d) risorius
- (e) quadratus labii superioris

(c) Yet all five muscles are innervated by the facial (VII) nerve.

After the facial nerve exits through the stylomastoid foramen, it ramifies in the substance of the parotid gland in five branches. All are correctly listed below *except*:

- (a) zygomatic
- (b) temporal
- (c) cervical
- (d) buccal
- (e) auricular

(e) The missing branch is the mandibular.

The ethmoid bone, which arises in cartilage and is replaced endochondrally, contributes to all below *except*:

- (a) cribriform plate
- (b) lamina papyracea of the orbit
- (c) superior concha
- (d) middle concha
- (e) inferior concha

(e) The inferior concha is a separate bone, also arising endochondrally, on the lateral wall of the nasal cavity.

Which of the following drains into the inferior meatus of the nose?

- (a) nasolacrimal duct
- (b) maxillary sinus
- (c) frontal sinus
- (d) ethmoidal sinus
- (e) sphenoidal sinus

(a) Choices (b), (c), and choice (d) (in part) drain into the middle meatus and (e) into the superior meatus, as does part of the ethmoidal sinuses.

The maxillary premolar teeth are innervated by neurons that pass through all of the following *except*:

- (a) maxillary sinus
- (b) infraorbital groove (canal)
- (c) foramen rotundum
- (d) superior orbital fissure
- (e) pterygopalatine fossa

(d) The pterygopalatine fossa communicates anteriorly to the infraorbital groove by the inferior orbital fissure.

The mylohyoid nerve is described by all of the following *except*:

- (a) runs in the mylohyoid groove of the mandible
- (b) innervates the mylohyoid muscle
- (c) innervates the anterior belly of the digastric muscle
- (d) it is derived from the inferior alveolar nerve
- (e) carries autonomic axons to the submandibular ganglion

(e) The posterior belly of the digastric is innervated by VII; the lingual nerve contains the autonomic axons carried to it by the chorda tympani nerve (of VII).



## QUESTIONS

## ANSWERS

In the following two columns, match the muscles with their attachment to the mandible:

- |                     |                       |
|---------------------|-----------------------|
| 1. genial tubercle  | (a) masseter          |
| 2. angular process  | (b) temporalis        |
| 3. coronoid process | (c) lateral pterygoid |
| 4. condylar process | (d) mylohyoid         |
| 5. mylohyoid line   | (e) geniohyoid        |

1-(e); 2-(a); 3-(b); 4-(c); 5-(d) The medial pterygoid attaches to the medial surface of the angular process.

In the following list, the cranial openings and their contents are correctly matched *except*:

- | Foramen                      | Contents                 |
|------------------------------|--------------------------|
| (a) hypoglossal foramen      | XII                      |
| (b) stylomastoid foramen     | VII                      |
| (c) foramen ovale            | mandibular division of V |
| (d) superior orbital fissure | ophthalmic division of V |
| (e) foramen lacerum          | internal carotid artery  |

(e) The foramen lacerum is filled with cartilage, a remnant of the fetal chondrocranium.

All the following structures pass through the jugular foramen *except*:

- (a) internal jugular vein
- (b) X nerve
- (c) XI nerve
- (d) IX nerve
- (e) cervical sympathetic chain

(e) The sympathetic chain ends at the superior cervical ganglion. Post-ganglionic sympathetic axons run to cephalic viscera in the tunica adventitia of the branches of the carotid artery.

The arterial supply to the maxillary and mandibular teeth comes from:

- (a) a single branch of the maxillary artery
- (b) separate branches of the maxillary artery
- (c) branches of the maxillary and sublingual artery, respectively
- (d) the maxillary and facial arteries
- (e) branches of the internal carotid artery

(b) The internal carotid artery does not branch until after it enters the skull through the carotid canal.

Blood flowing in the angular vein can drain:

- (a) only downward toward the jugular vein system
- (b) only upward toward the ophthalmic veins
- (c) either downward toward the jugular vein system or upward toward the ophthalmic veins
- (d) only across the midline to similar, contralateral veins
- (e) none of the above are correct

(c) The drainage of this region is critical and can ultimately reach the cavernous sinus via the pathway of the ophthalmic veins.