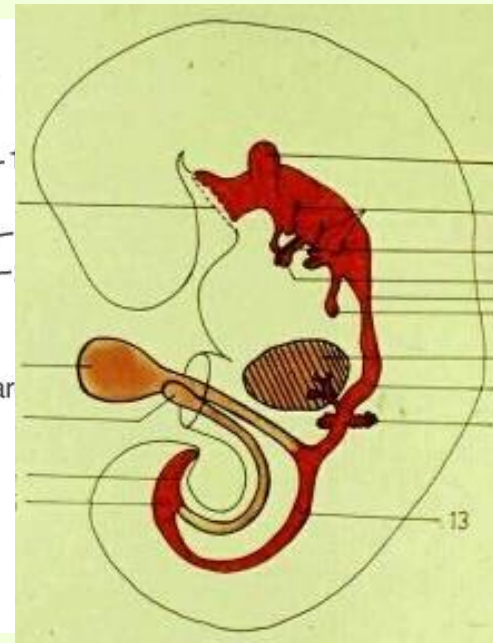
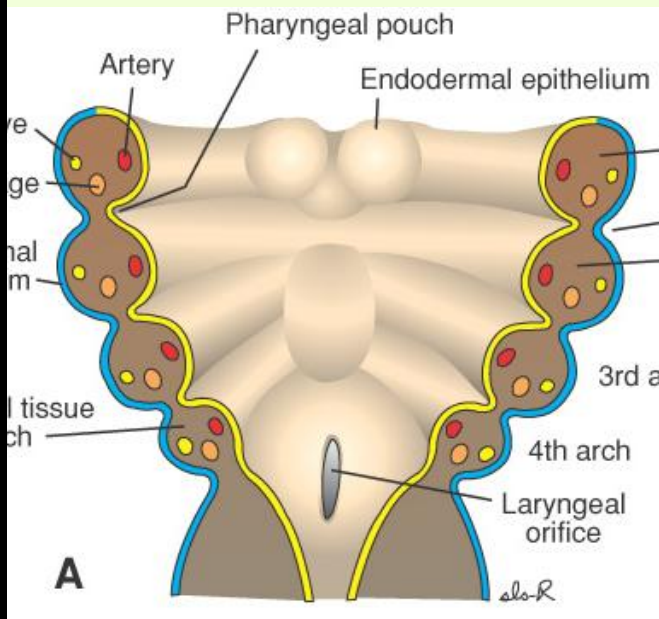
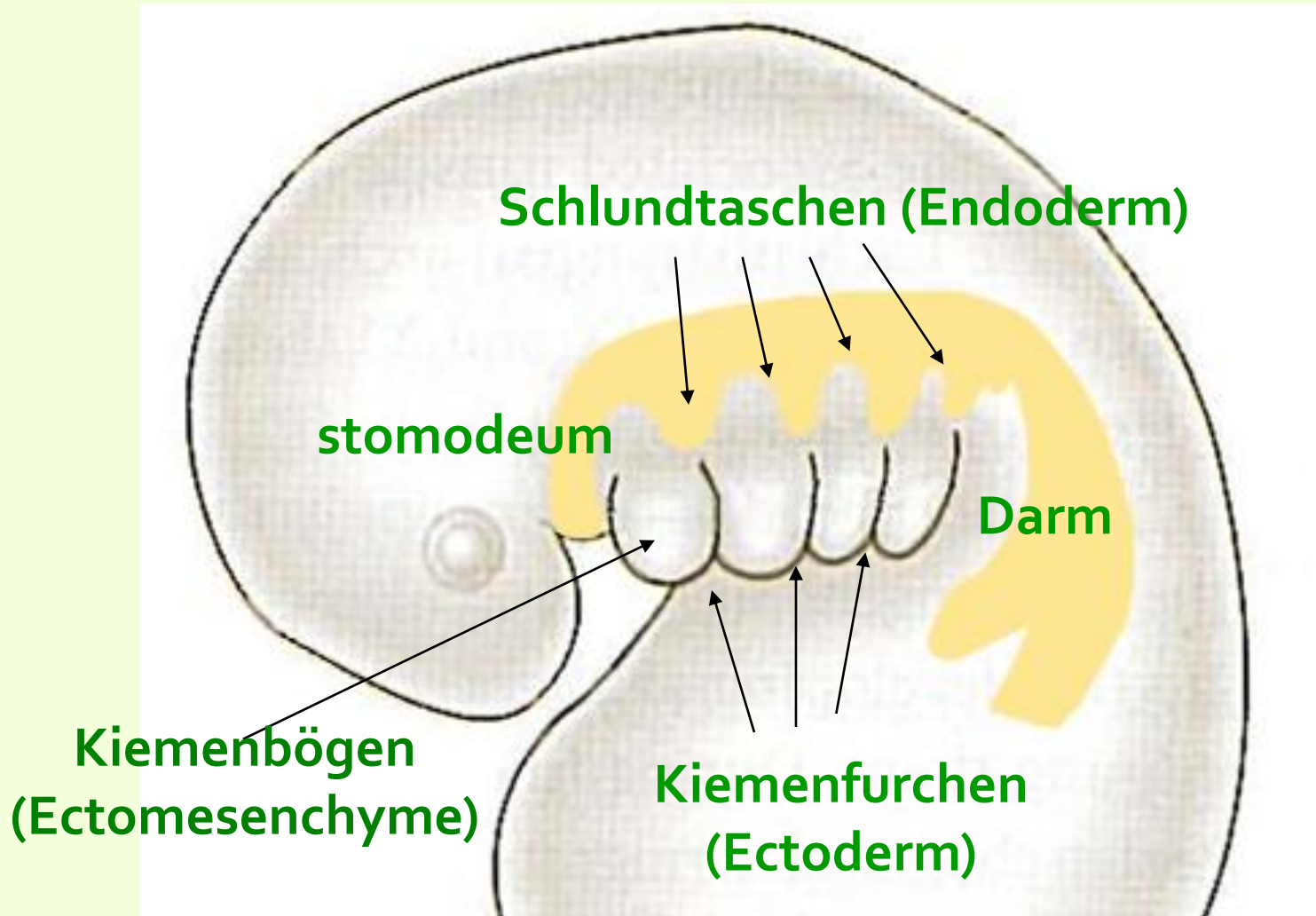


ENTWICKLUNG DES SCHLUNDDARMS UND VORDERDARMS, MISSBILDUNGEN



Dr. Andrea D Székely

BRANCHIALAPPARAT

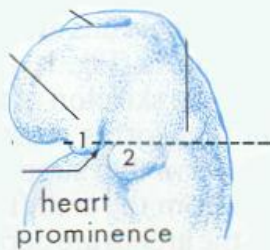




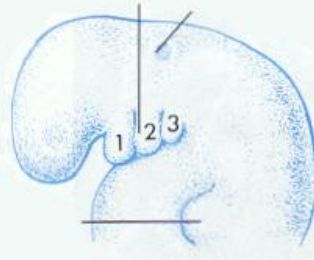
DIE KIEMENBÖGEN



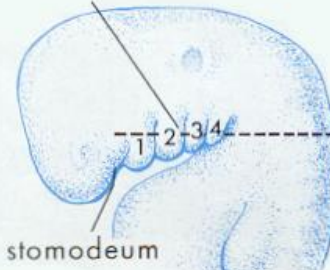
23 ± 1 day



24 ± 1 day



26 ± 1 day



28 ± 1 day

Mandibularbogen
 Unterkieferfortsatz
 Oberkieferfortsatz („o.“)

Hyoidbogen

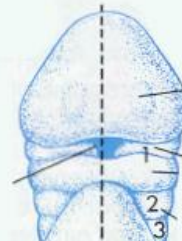
Dritter, vierter, sechster
 Kiemenbögen



22 ± 1 day

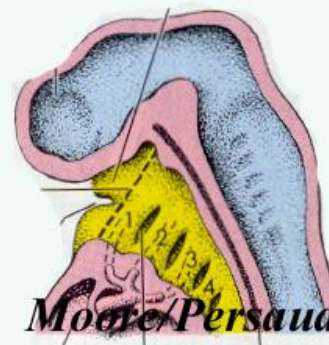
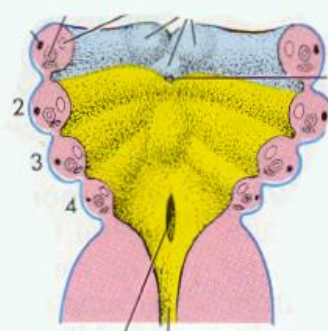
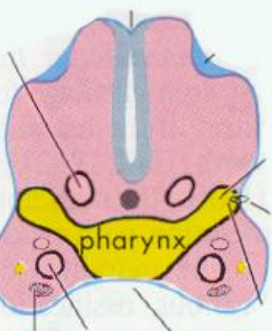


26 ± 1 day



28 ± 1 day

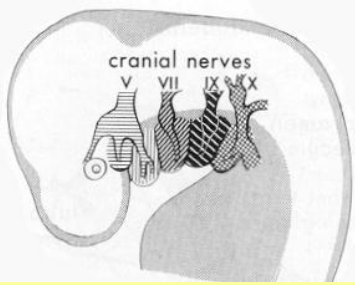
Kiemenbögen
 Kiemenfurchen
 Kiementaschen



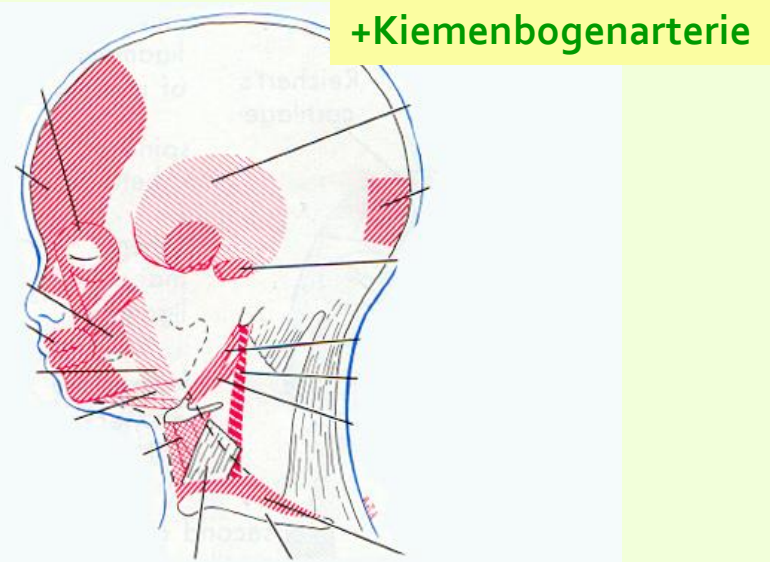
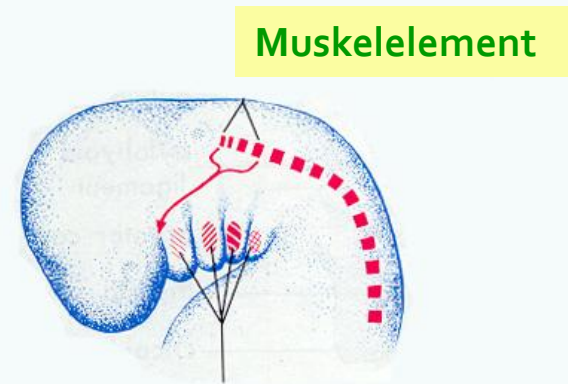
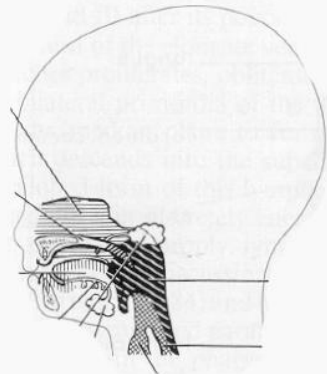
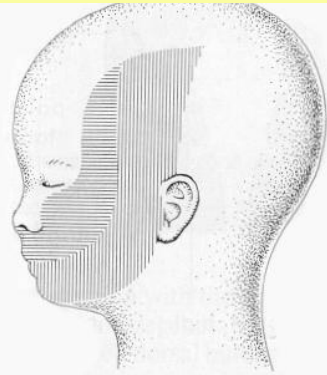
Stomodeum
 (ektodermale Mundbucht)
 Me. buccopharyngea
 Vorderdarm

Moore/Persaud

AUFBAU DER KIEMENBÖGEN



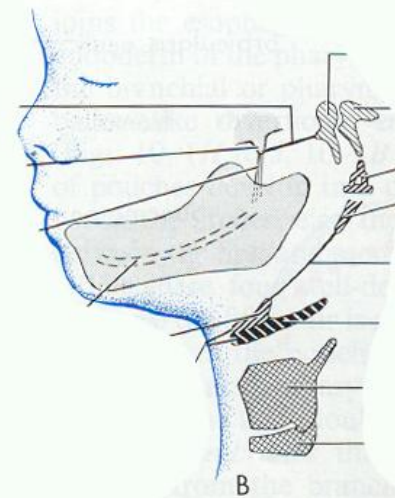
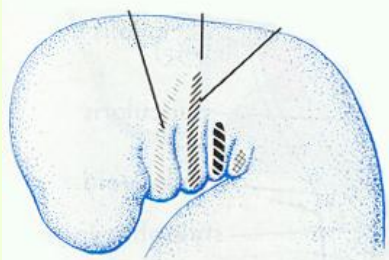
Kiemerbogennerv



Moore/Persaud

- first arch muscles
- second arch muscles
- third arch muscles
- fourth and sixth arch muscles

Knorpelspange



Moore/Persaud

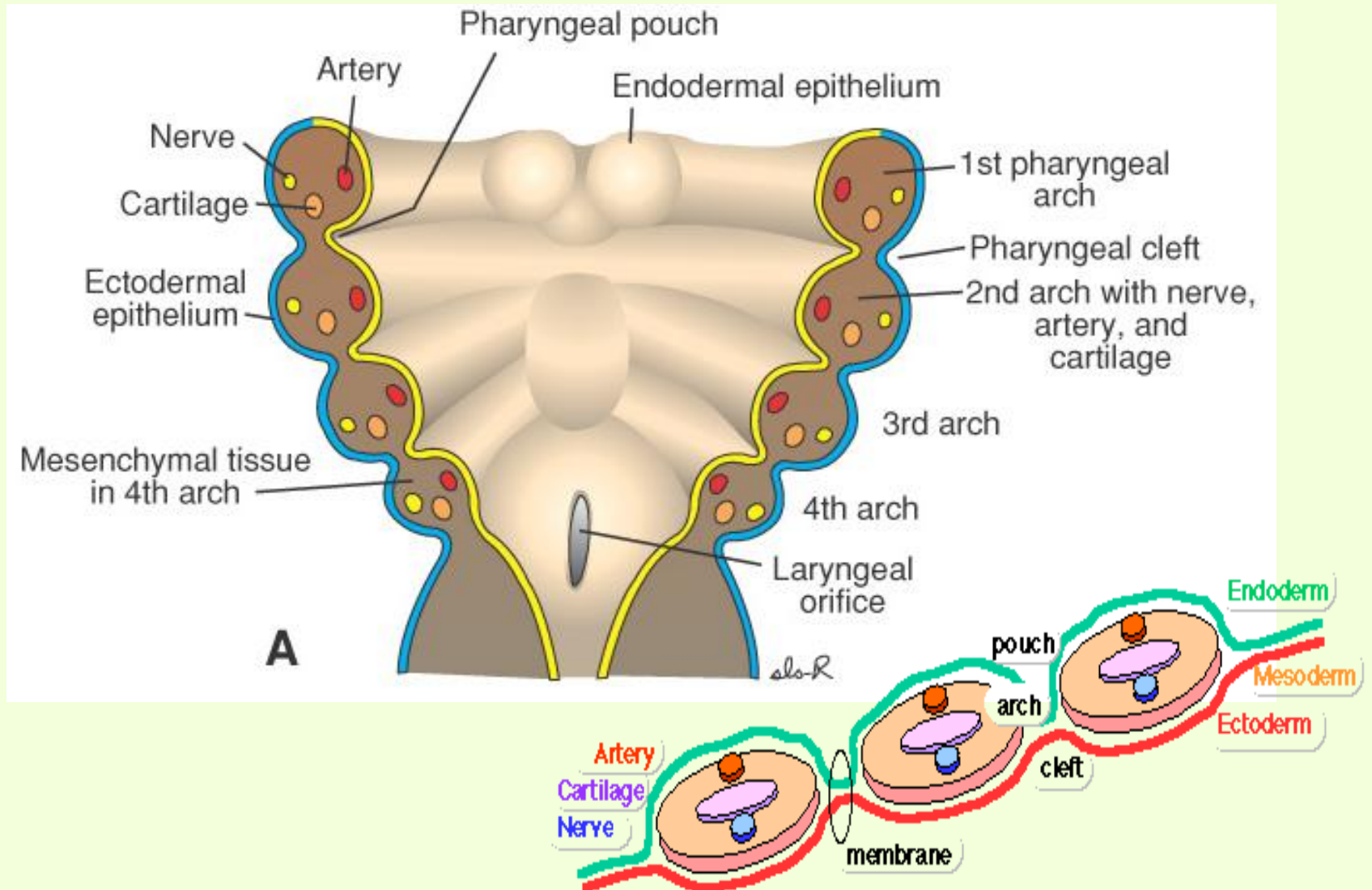
- first arch cartilage
- second arch cartilage
- third arch cartilage
- fourth and sixth arch cartilages

- Moore/Persaud
- | | |
|--|--|
| <p>1st branchial arch</p> <ul style="list-style-type: none"> V maxillary division V mandibular division <p>3rd branchial arch</p> <ul style="list-style-type: none"> IX glossopharyngeal | <p>2nd branchial arch</p> <ul style="list-style-type: none"> VII facial <p>4th branchial arch</p> <ul style="list-style-type: none"> X vagus |
|--|--|

Derivates of pharyngeal folds	Arch number	Aortic arch	Cranial nerve	Examples of branchiomeric muscles	Skeletal derivatives	Derivates of pharyngeal pouch
external auditory meatus	I mandibular	maxillary artery	V trigeminal	muscles of mastication etc.	malleus, incus spheno-mandibular lig. Meckel cart.	I middle ear auditory tube
	II hyoid	hyoid, stapedial artery	VII facial	muscles of facial expression etc.	stapes, styl. proc., stylohyoid lig., part of hyoid cart.	II supra-tonsillar fossa
	III	internal carotid artery	IX glosso-pharyng.	m. stylopharyngeus	parts of hyoid cart.	III thymus, parathyr. gland
	IV	right subclavian artery, aorta	X vagus	pharyngeal and laryngeal musculature	laryngeal cart.	IV thymus parathyr. gland ultimobranch. body

neck

KIEMENFURCHEN UND SCHLUNDTASCHEN



GENE EXPRESSION PATTERN

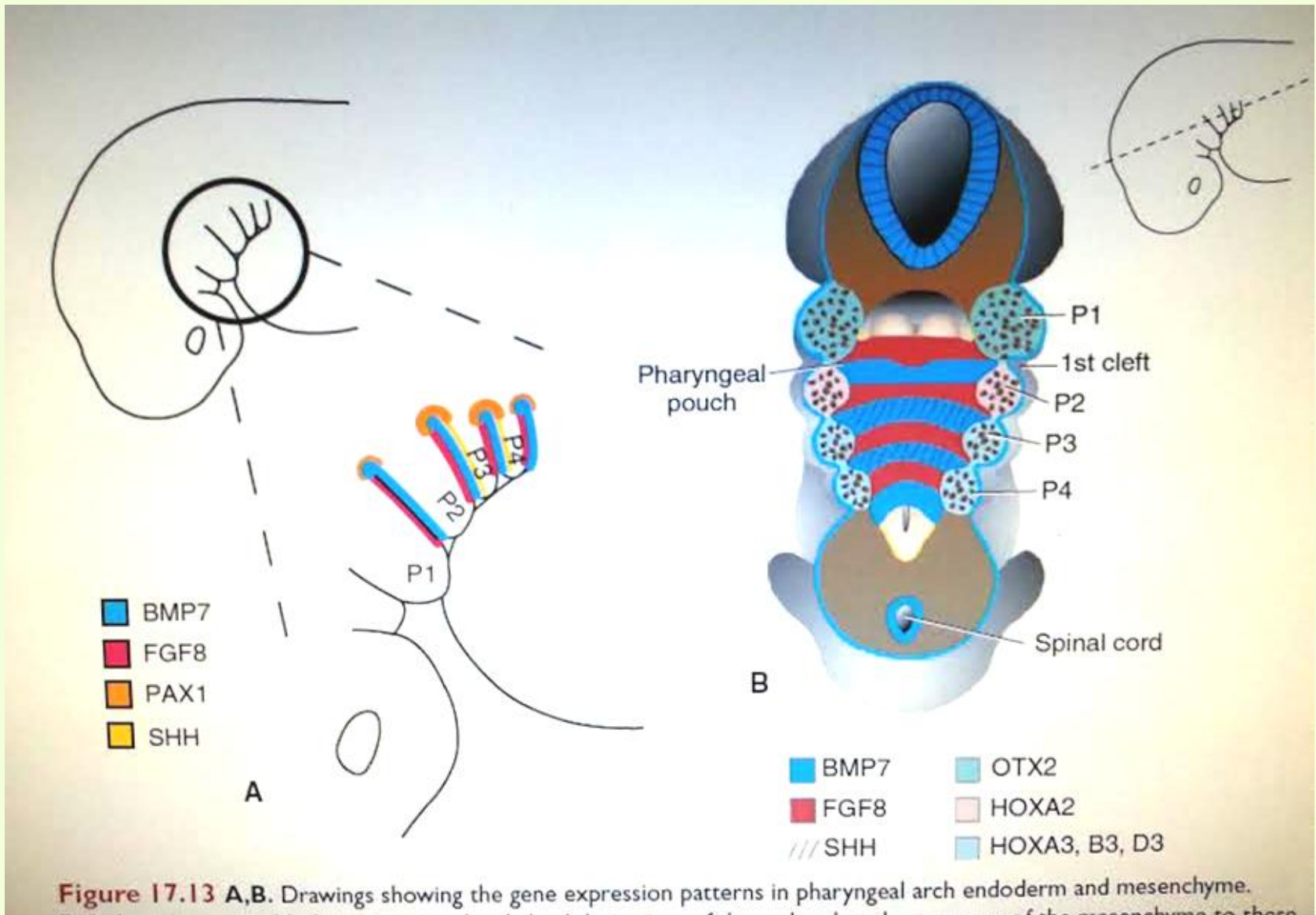
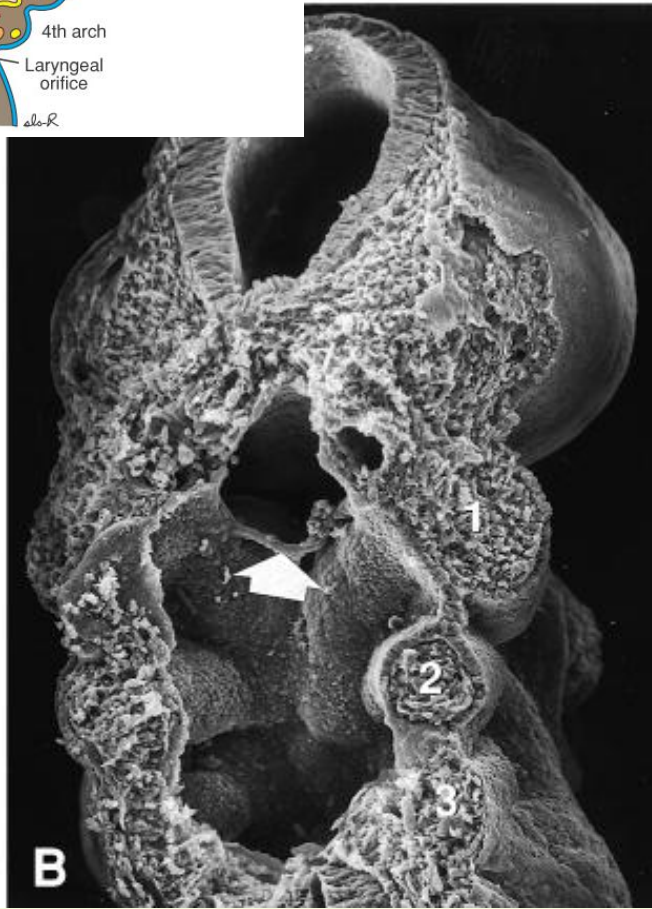
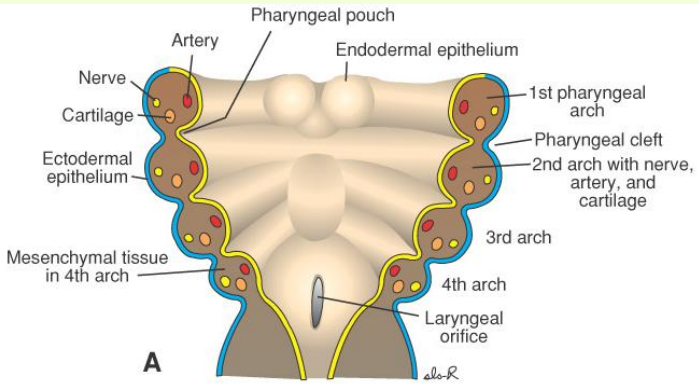
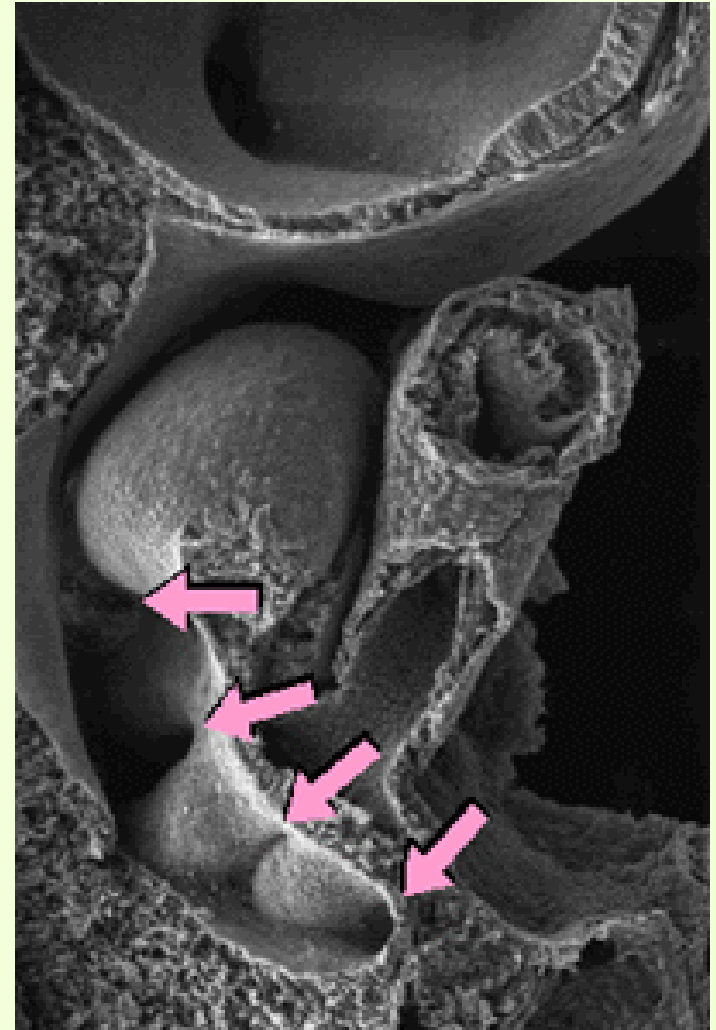
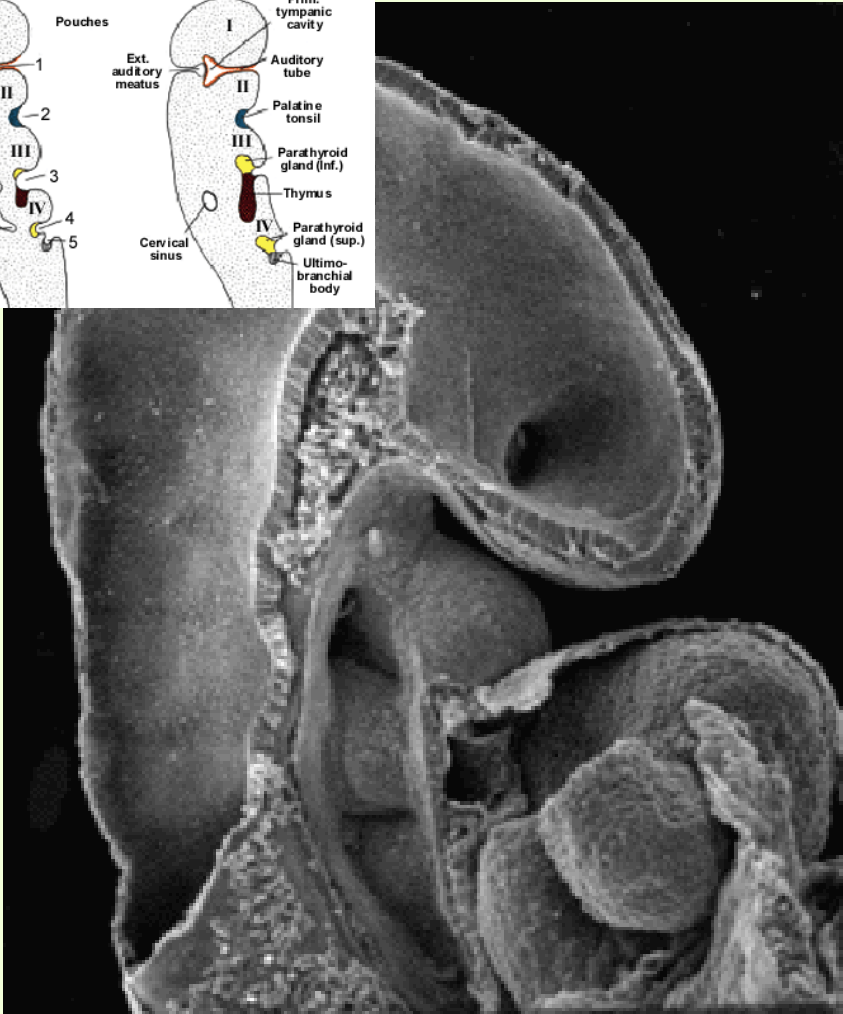
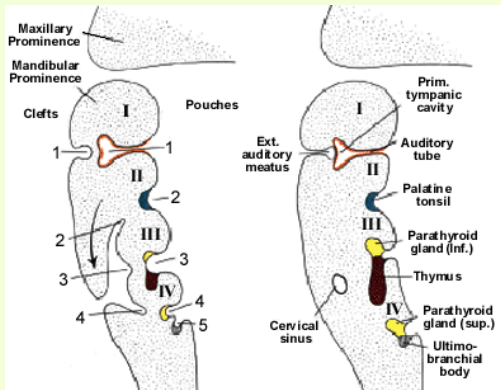


Figure 17.13 A,B. Drawings showing the gene expression patterns in pharyngeal arch endoderm and mesenchyme.

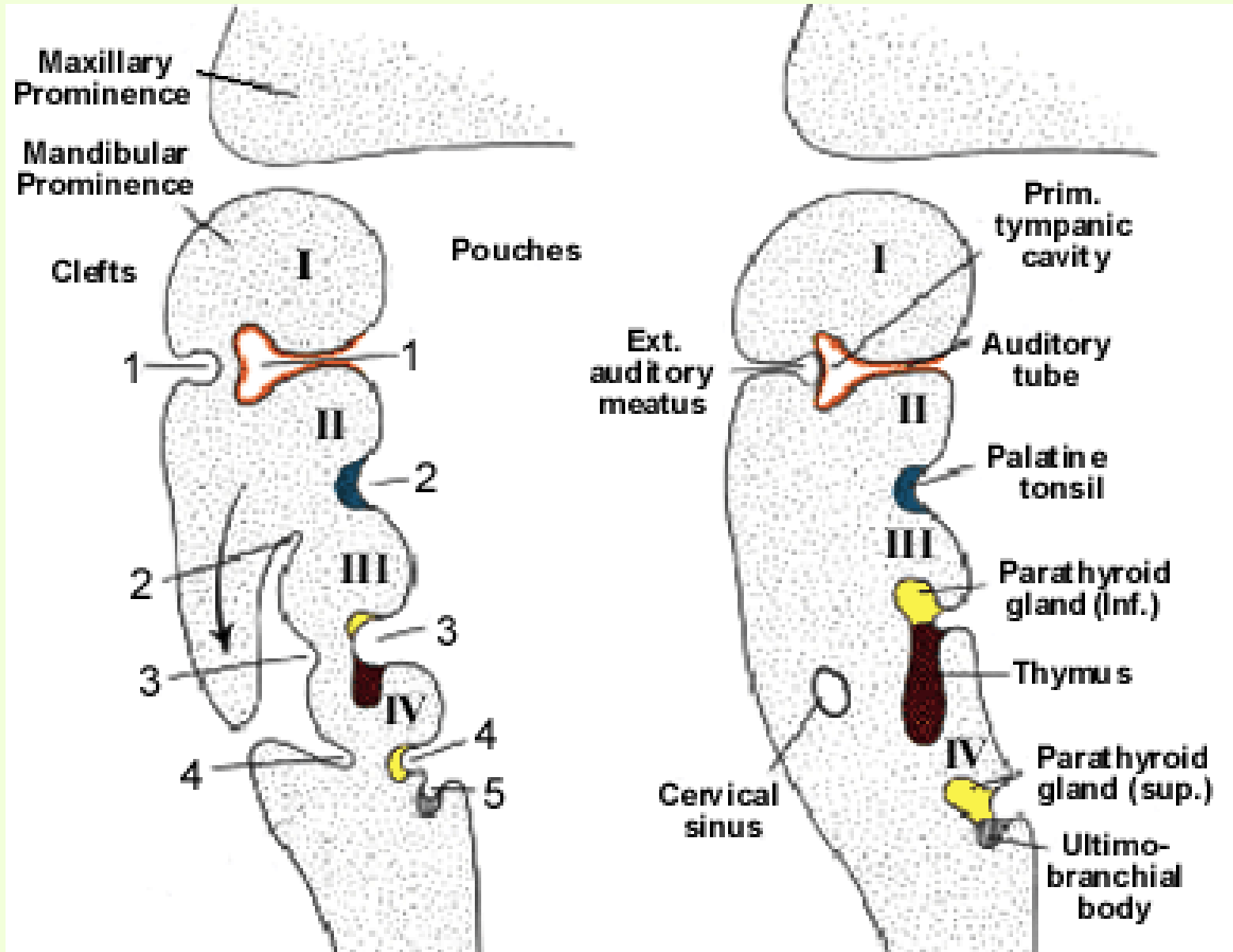
SCANNING EM - PRIMITIVER PHARYNX 1.



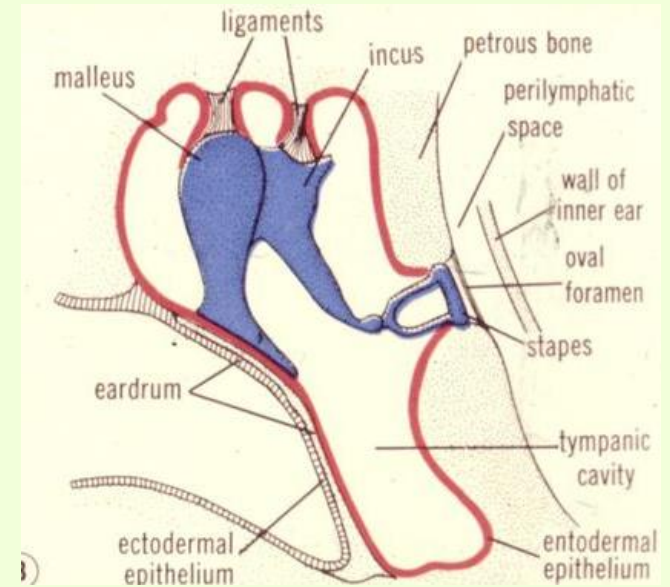
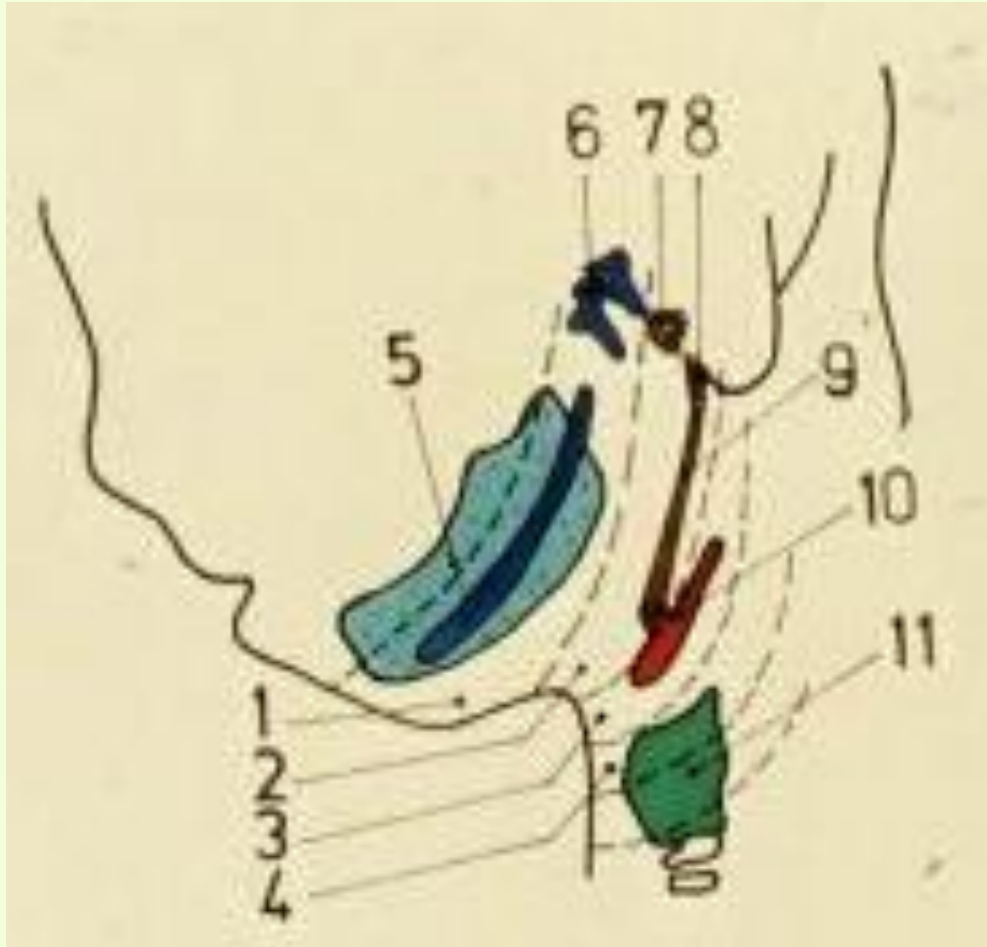
SCANNING EM - PRIMITIVE PHARYNX 2.



SCHLUNDTASCHEN

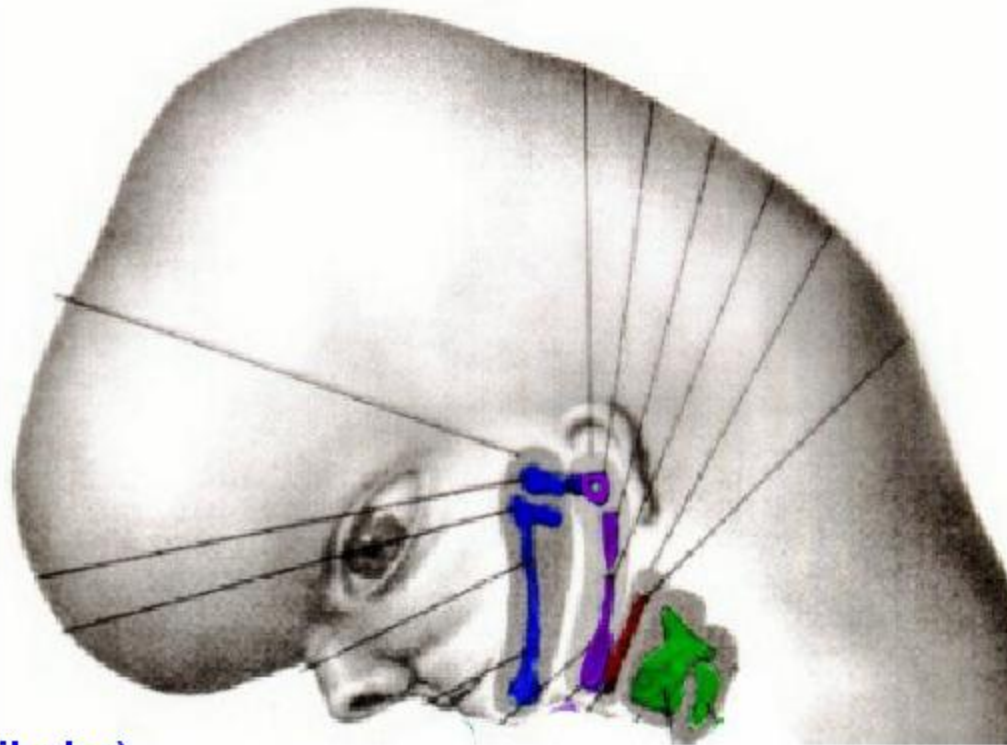


KNORPELDERIVATEN



- 1-4. projection of arches
5. mandible
6. malleus and incus
7. stapes
8. styloid process
9. stylohyoid ligament
10. hyoid bone
11. larynx (thyroid cartilage)

BRANCHIAL ARCH CARTILAGES



I First (Mandibular)

Arch -

1. Malleus
2. Incus
3. Ant. Ligament
Of malleus
4. Sphenomandibular
ligament

II Second (Hyoid) Arch

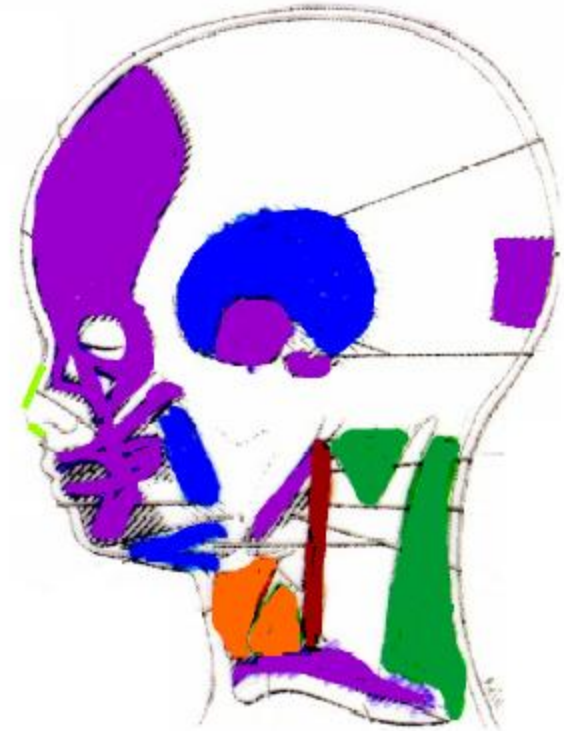
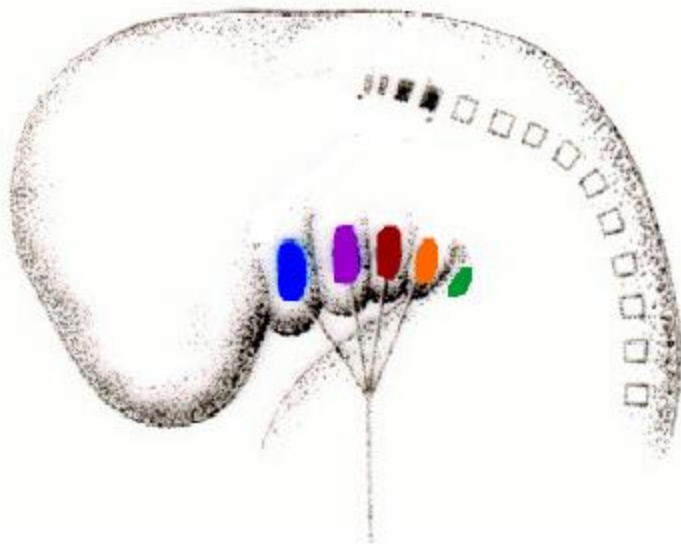
1. Stapes
2. Styloid Process
3. Stylohyoid Ligament
4. Lesser horn, Upper
 $\frac{1}{2}$ body Hyoid

III Third Arch -

- Lower $\frac{1}{2}$
Body, Greater
Horn Of hyoid

- ## IV Fourth (Sixth) Arch - Cartilages Of larynx

MUSCLES OF BRANCHIAL ARCHES



Innervated by

First -
Trigeminal
V

Second -
Facial
VII

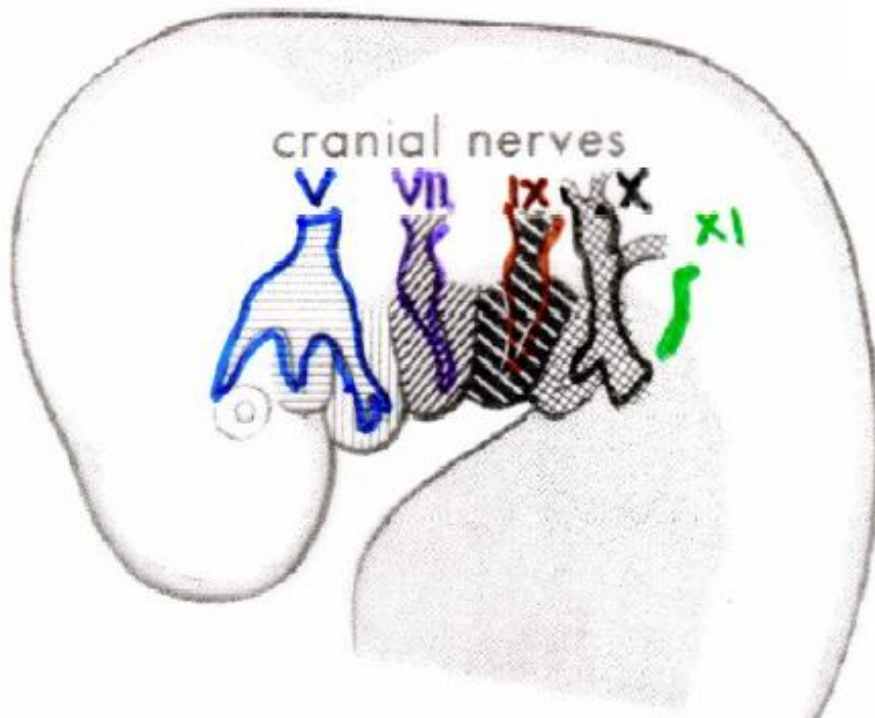
Third
Glosso-
pharyngeal
IX

Fourth
Vagus
X

Sixth
Accessory
XI

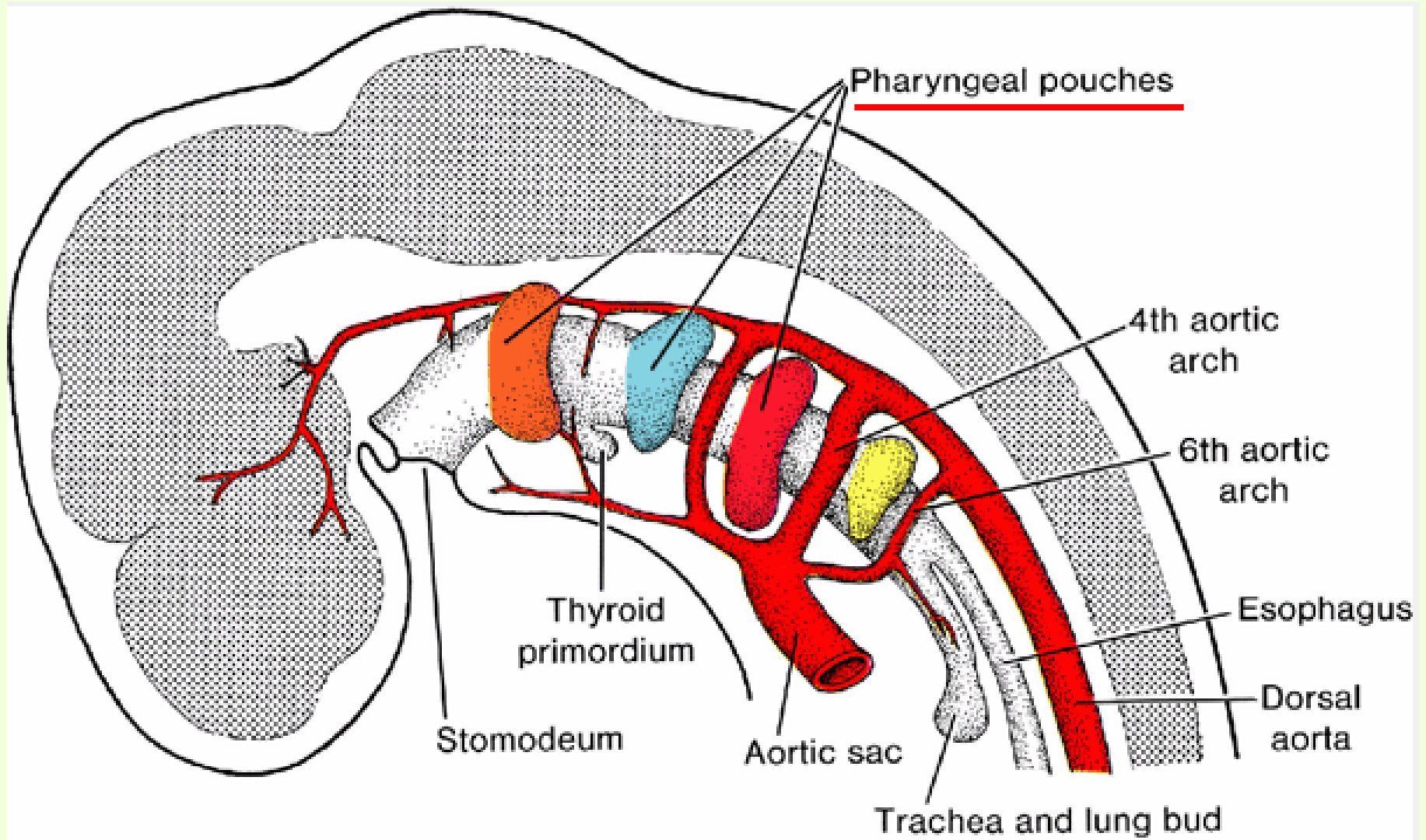
BRANCHIAL ARCH NERVES

Muscles of Arches are innervated by Cranial Nerves

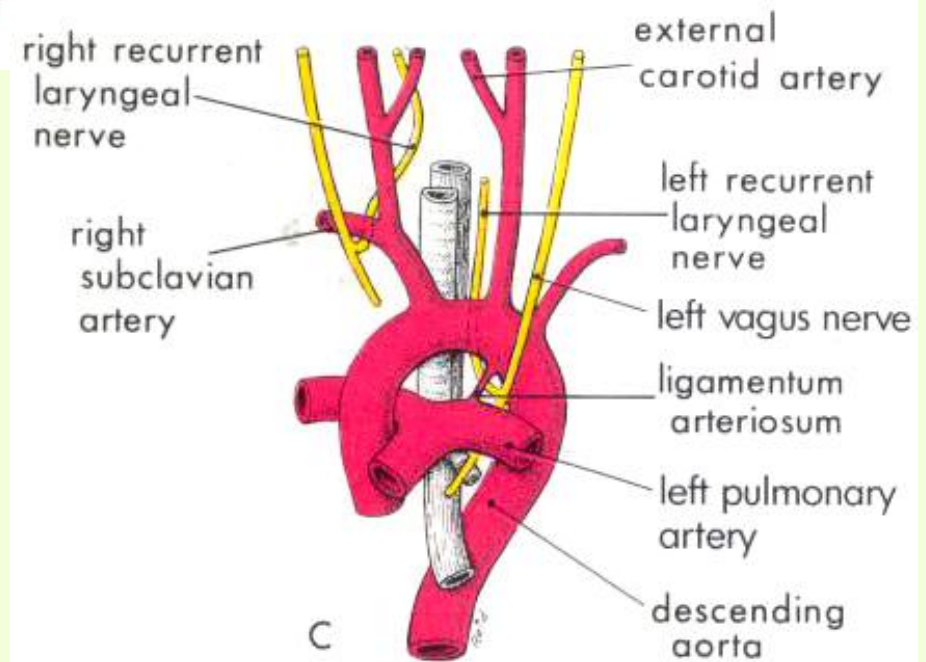
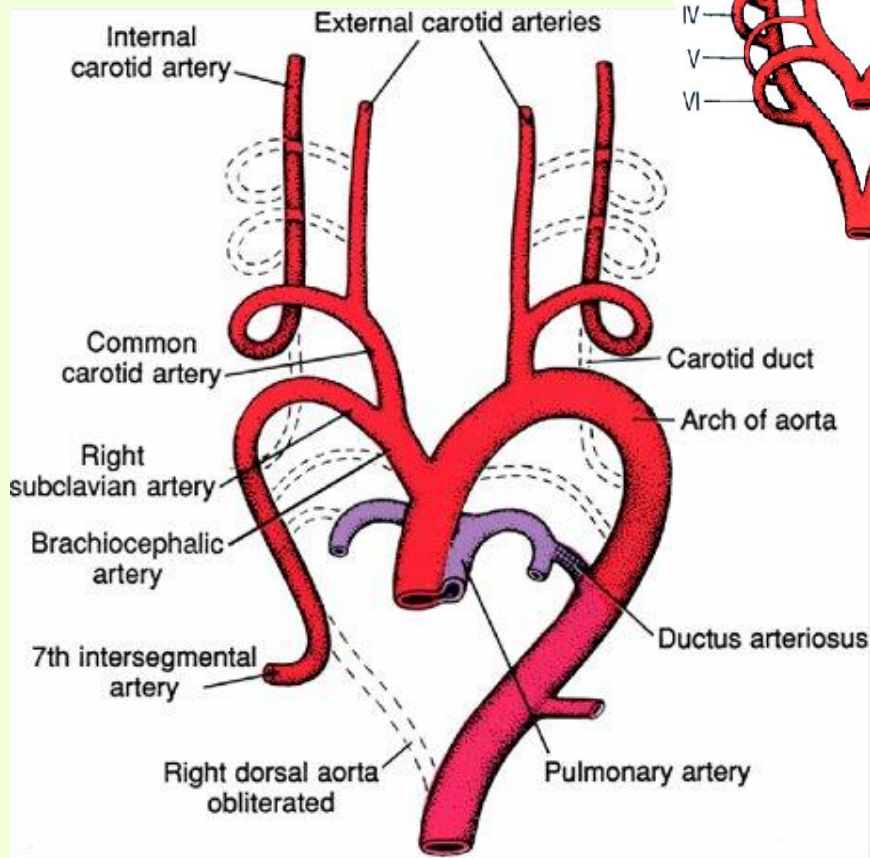
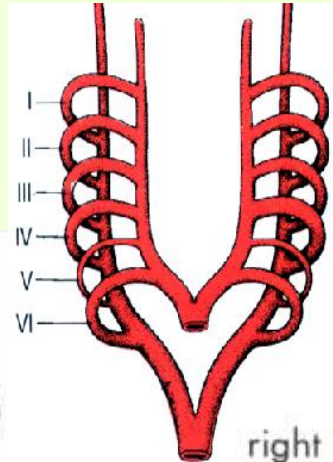


- 1) First Arch – Trigeminal (V)
- 2) Second Arch – Facial (VII)
- 3) Third Arch – Glossopharyngeal (IX)
- 4) Fourth Arch – Vagus (X)
- 5) Caudal Sixth – Accessory (XI)

AORTENBÖGEN

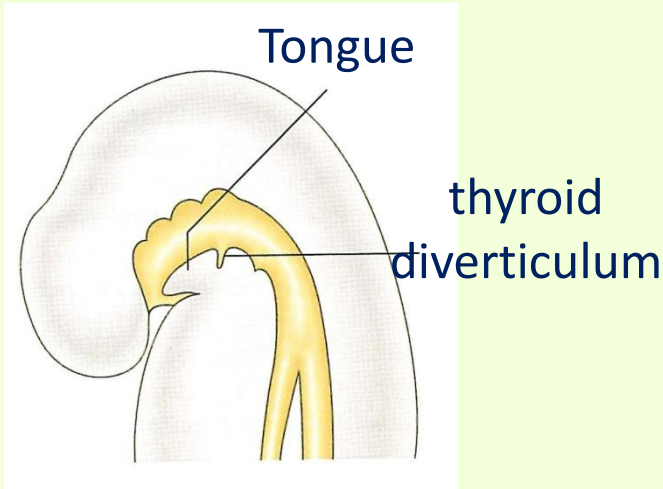


AORTENBÖGENDERIVATEN

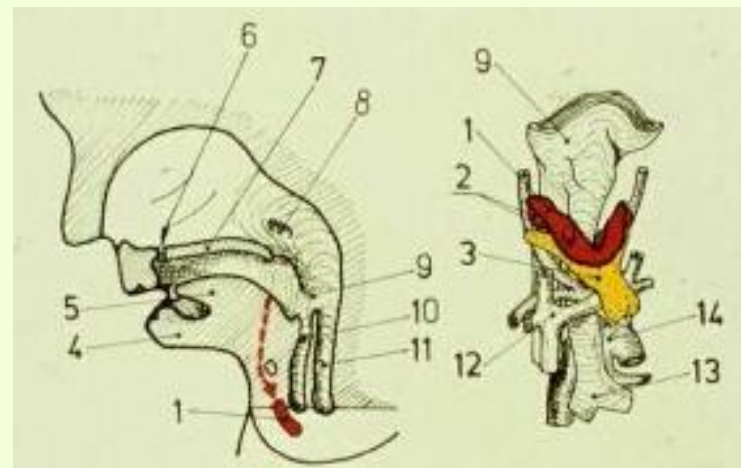
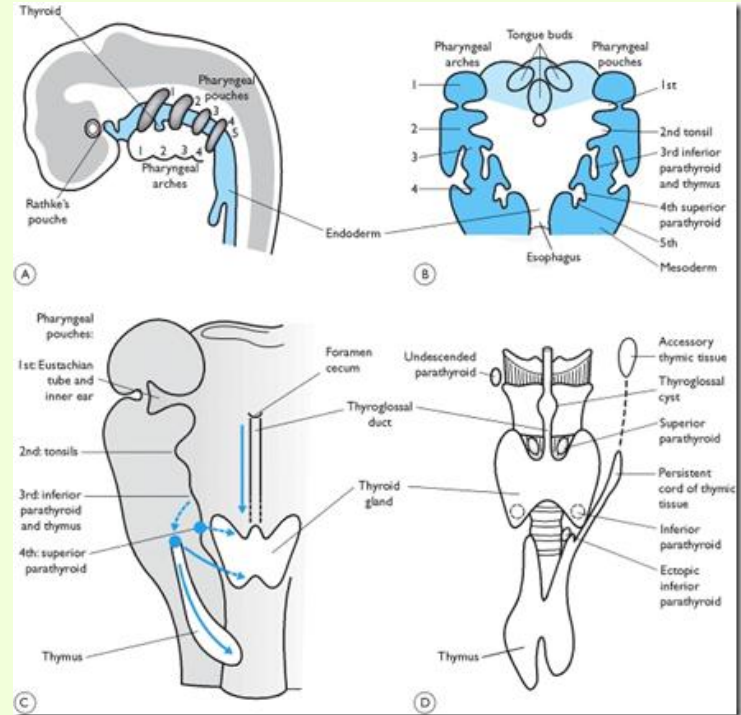
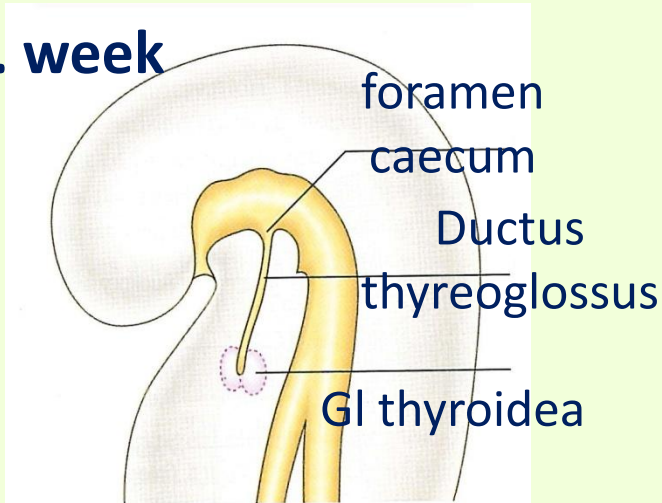


ENTWICKLUNG DER GL. THYROIDEA

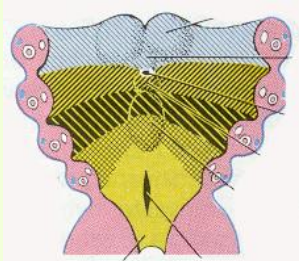
4. week



5. week



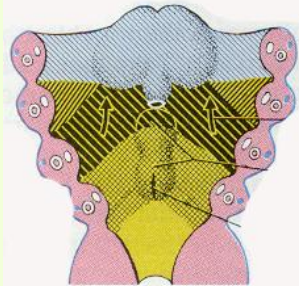
ENTWICKLUNG DER ZUNGE



Tuberculum impar

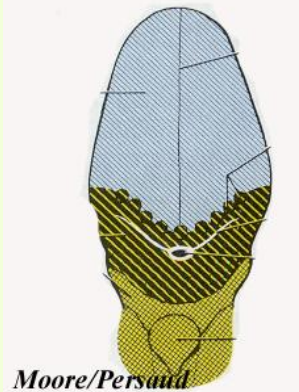
Tuberculum laterale

Sulcus terminalis



Copula

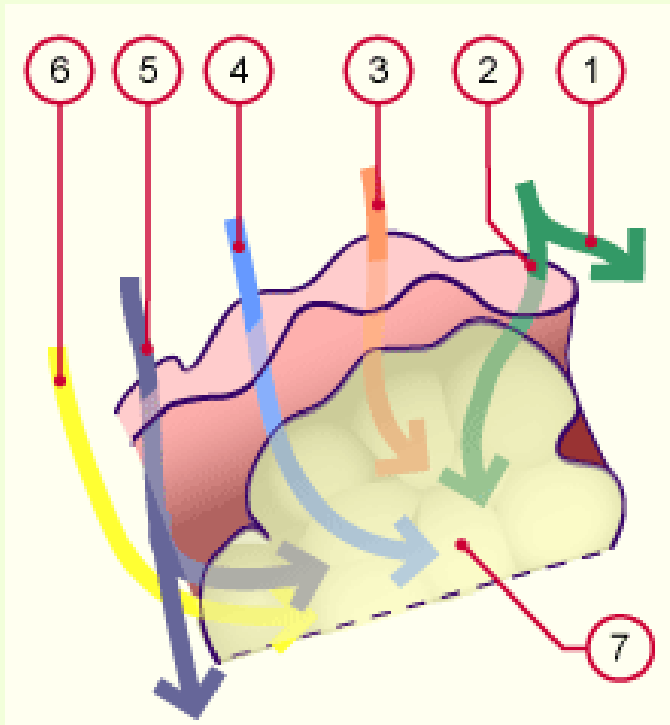
Eminentia hypobranchialis



okzipitale Myotome (n. XII.)

Papillen, Geschmacksknospen

ENTWICKLUNG DER INNERVATION



1. N. maxillaris (V₂)

2. N. lingualis
(N. mandibularis, V₃)

3. Chorda tympani
(N. facialis, VII)

4. N. glossopharyngeus (IX)

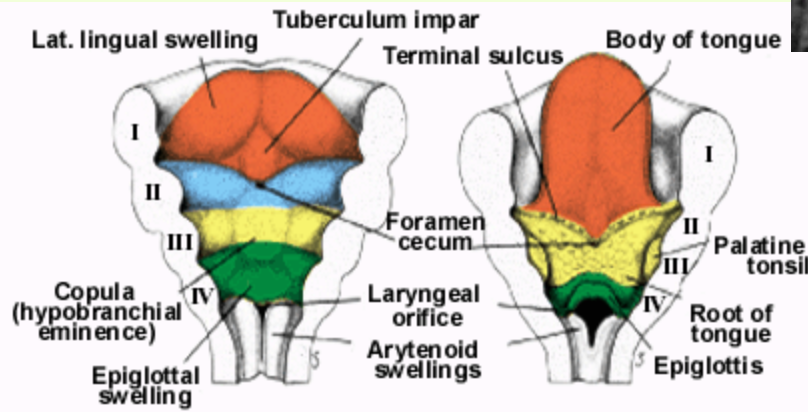
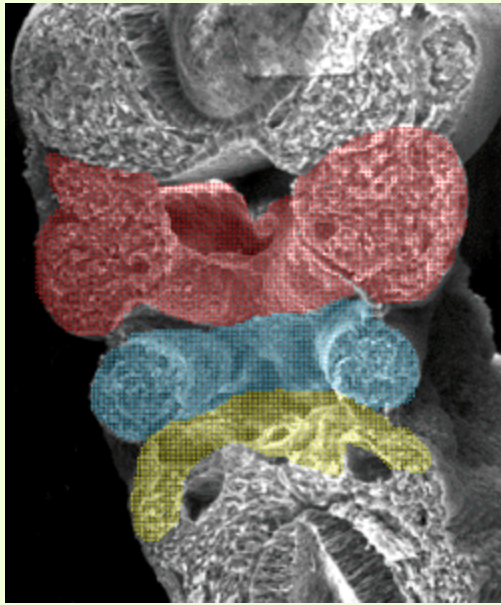
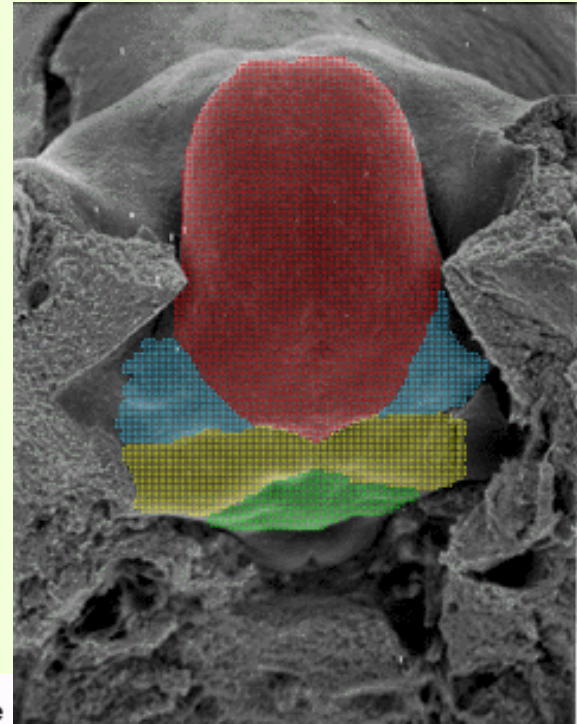
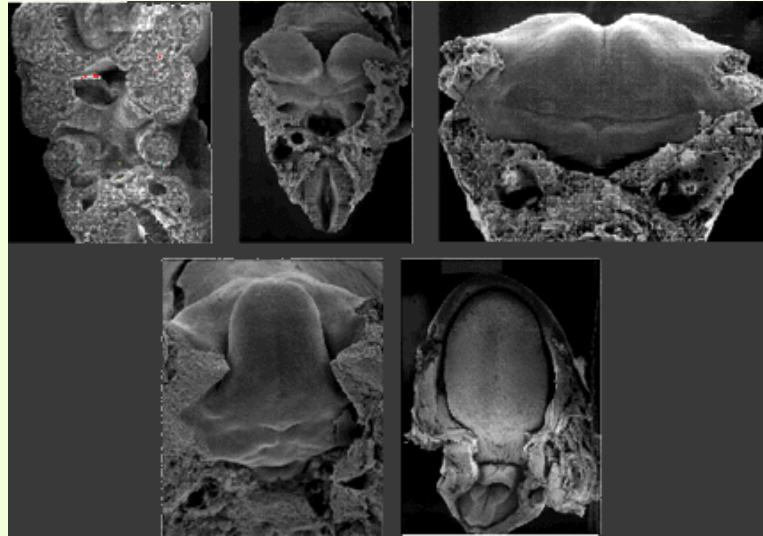
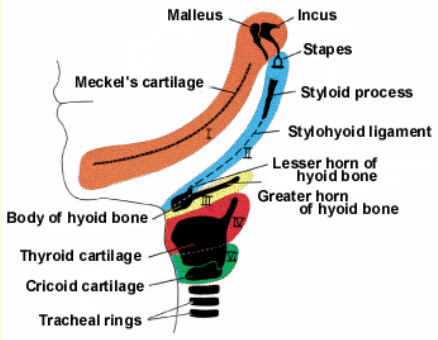
5. N. vagus (X)

6. N. hypoglossus (XII)

primordium	arch	nerve	area of nervous supply
tuberculum impar and proc. lateralis	1	CN5/3 sensory: lingual n.	Mucosa - anterior 2/3 CT
	2	CN7 (chorda tympani)	Taste – anterior 2/3 CT
Eminencia hypopharyngealis (hypobranchialis)	3 & 4	CN9 ,CN 10 Sensory and taste	Mucosa and taste – posterior 1/3, around the epiglottis CT
Occipital myotom (from the somitomes)		CN 12 motor	All intrinsic and extrinsic muscles (except palatoglossus - CN10) MUSCLE

EPITHELIUM : in front of sulcus terminalis **STOMODEUM** (ectoderm)
behind sulcus terminalis **FOREGUT** (endoderm)

SCANNING EM - ZUNGENANLAGEN

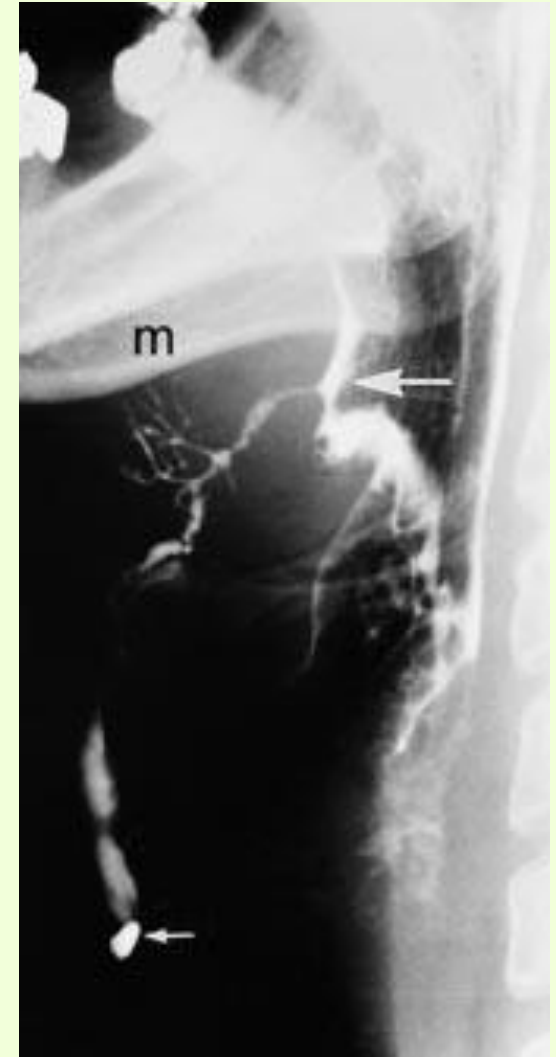


MISSBILDUNGEN 1.

Mittlere Halszyste

*ductus thyreoglossus
persistens*

(fistulisiert manchmal)

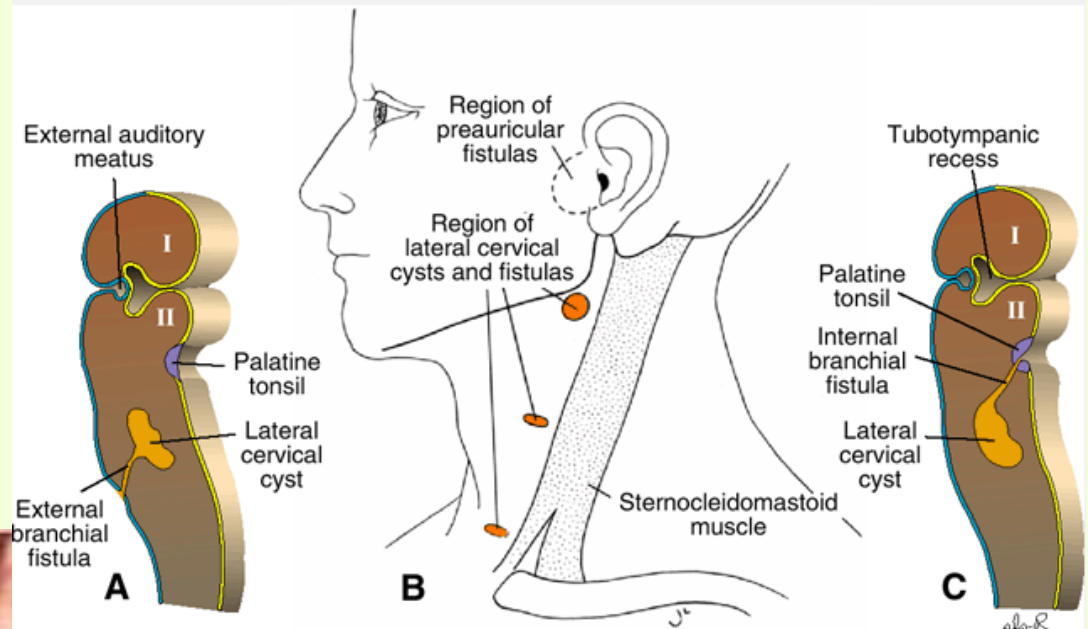


MISSBILDUNGEN 2.

Laterale Halszyste

sinus cervicalis persistens

(fistulen oder cystenbildung)



HALSFISTULE

