

JÓZSEF ATTILA TUDOMÁNYEGYETEM

DR. STAMMER ARANKA ÉS DR. CSOKNYA MÁRIA

**MUNKAFÜZET
BIOLÓGUS- ÉS BIOLÓGIA-KÉMIA
SZAKOS HALLGATÓK SZÁMÁRA**

I.

Kézirat

Szeged, 1973

GYAKORLATI MUNKAFÜZET

I.

KARIKÓ KATALIN

I.évf. BIOLÓGUS SZAK



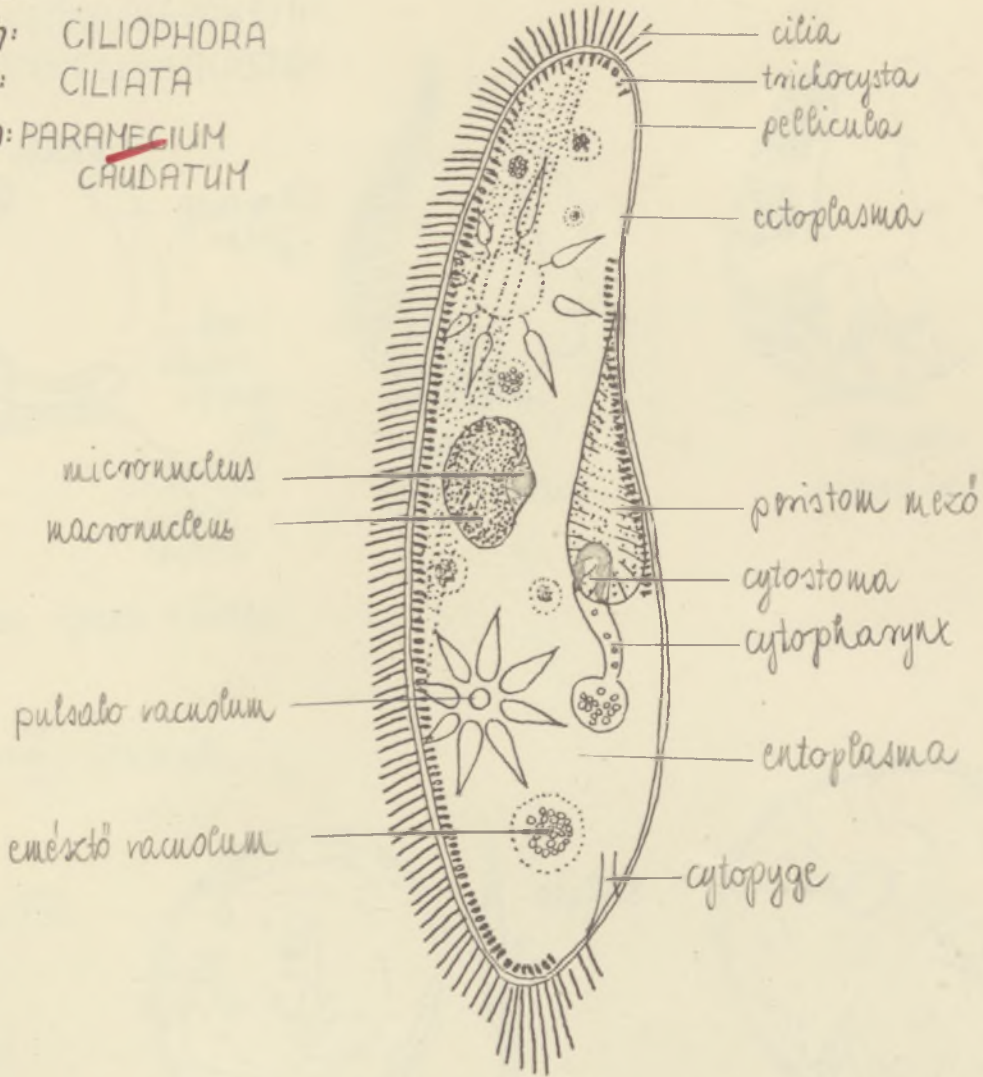
GYAKORLATI MUNKA FÜZET I.
biológus- és biológia-kémia szakos hallgatók számára

összeállította:

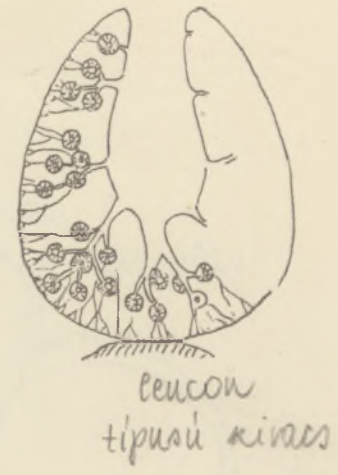
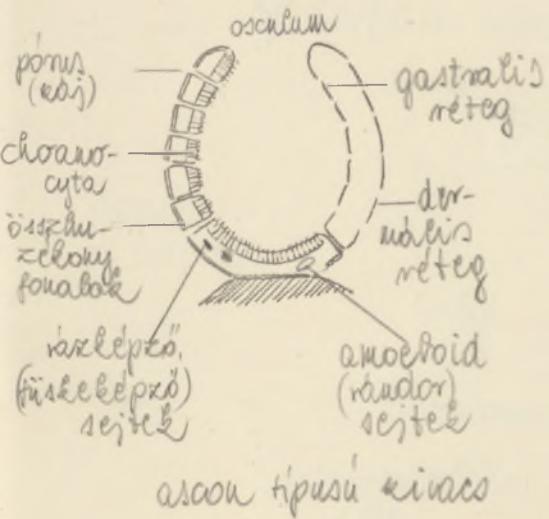
Dr. Csoknya Mária és Dr. Stammer Aranka

Szeged, 1972.

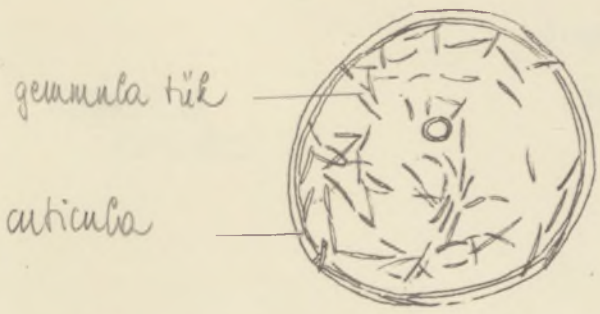
Subr: PROTOZOA
Div: —
Ph: CILIOPHORA
Cl: CILIATA
Sp: ~~PARAMECIUM~~
CAUDATUM



Subr: METAZOA
Div: PARAZOA
Ph: PORIFERA
Cl: CORNACUS PONGIAE
Sp: SPONGILLA LACUSTRIS



gyöngyszarij, gemmula

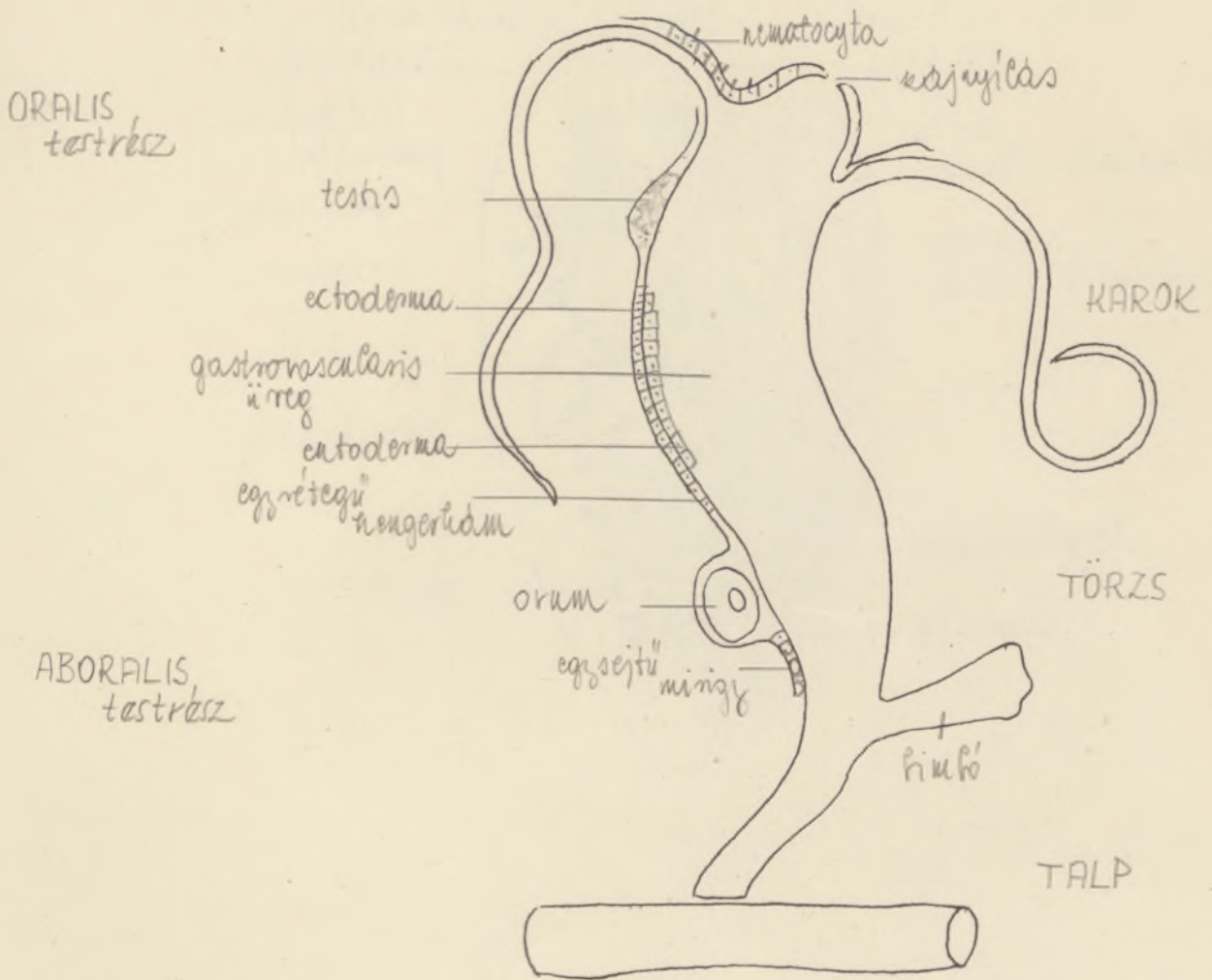


Ephidaria Mülleri

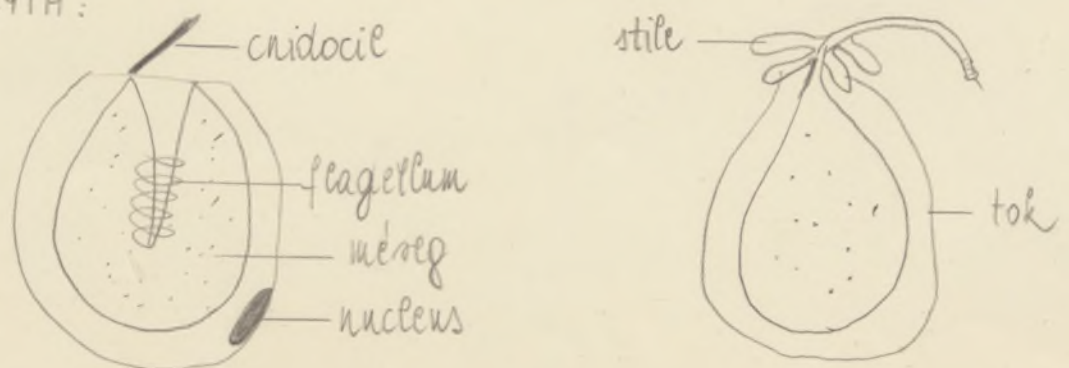
amphidiscus



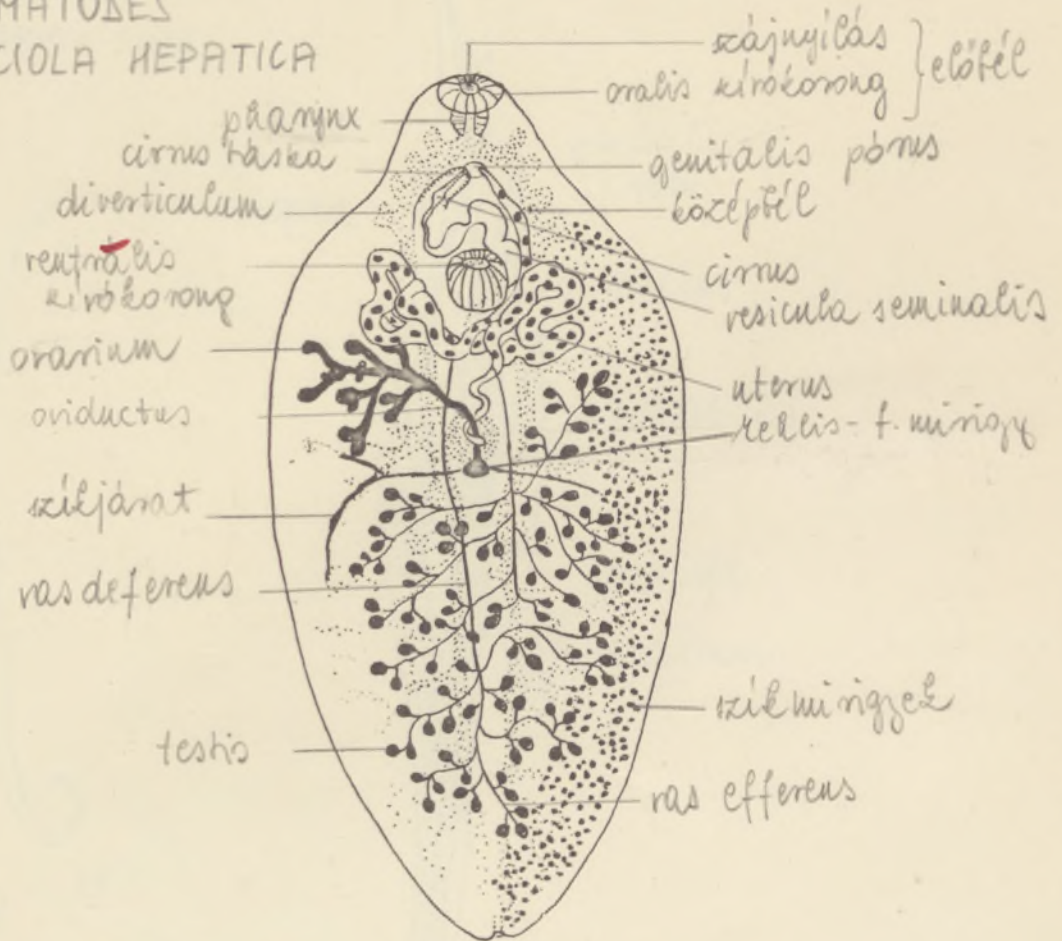
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Div: EUMETAZOA
Ph: CNIDARIA
Cl: HYDROZOA
Sp: HYDRA VULGARIS



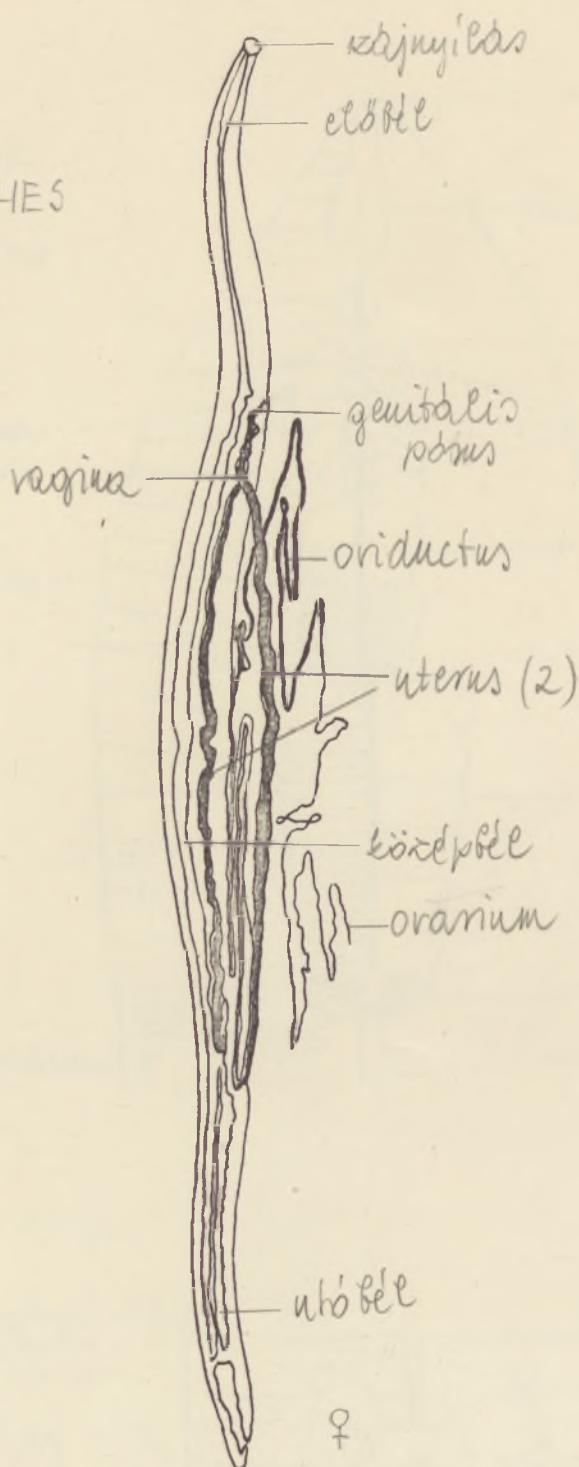
NEMATOCYTA:



Subr: METAZOA
Div: EUMETAZOA
Ph: PLATYHELMINTHES
Cl: TREMATODES
Sp: FASCIOLA HEPATICA

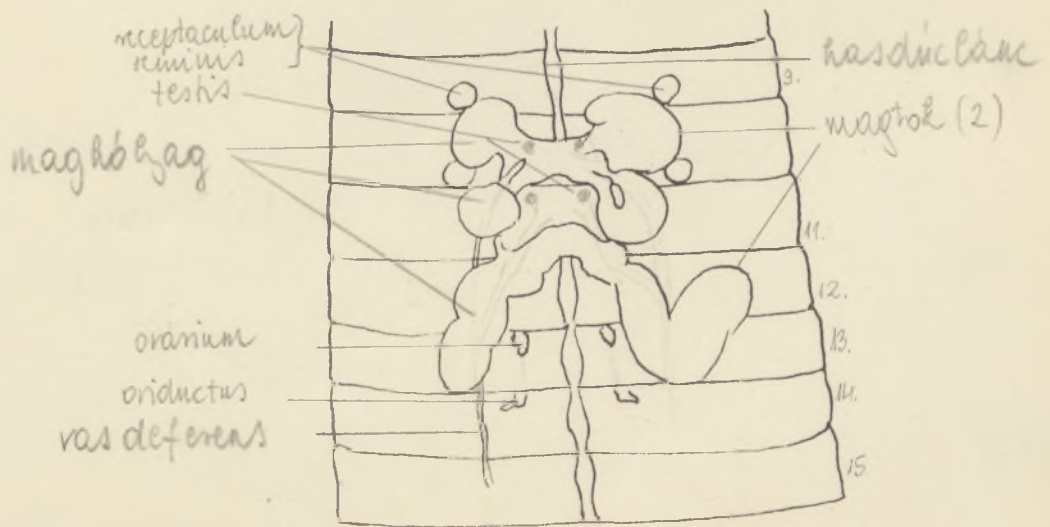
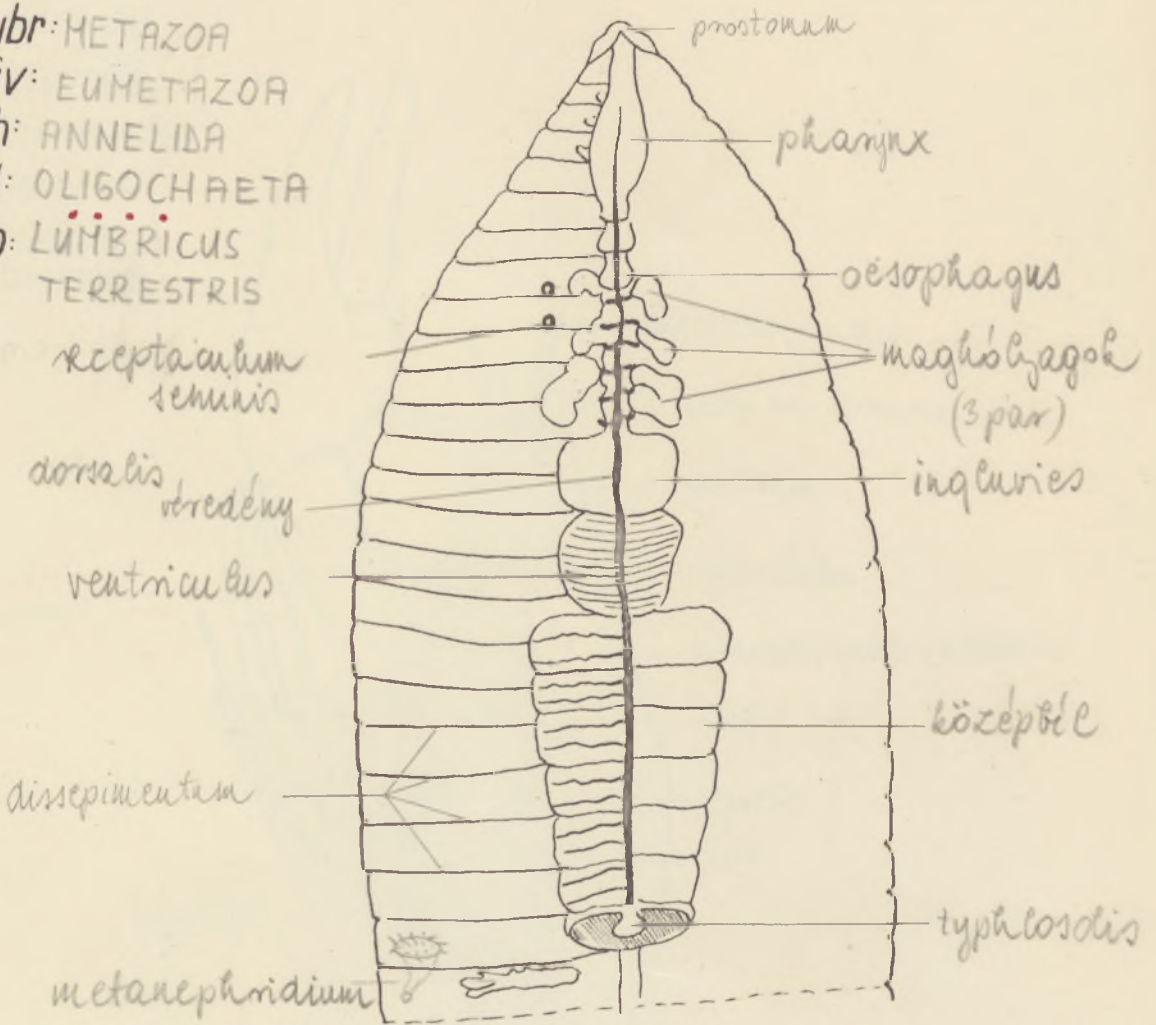


Subr: METAZOA
Div: EUMETAZOA
Ph: NEMATHELMINTHES
Cl: NEMATOIDEA
Sp: ASCARIS SUIS

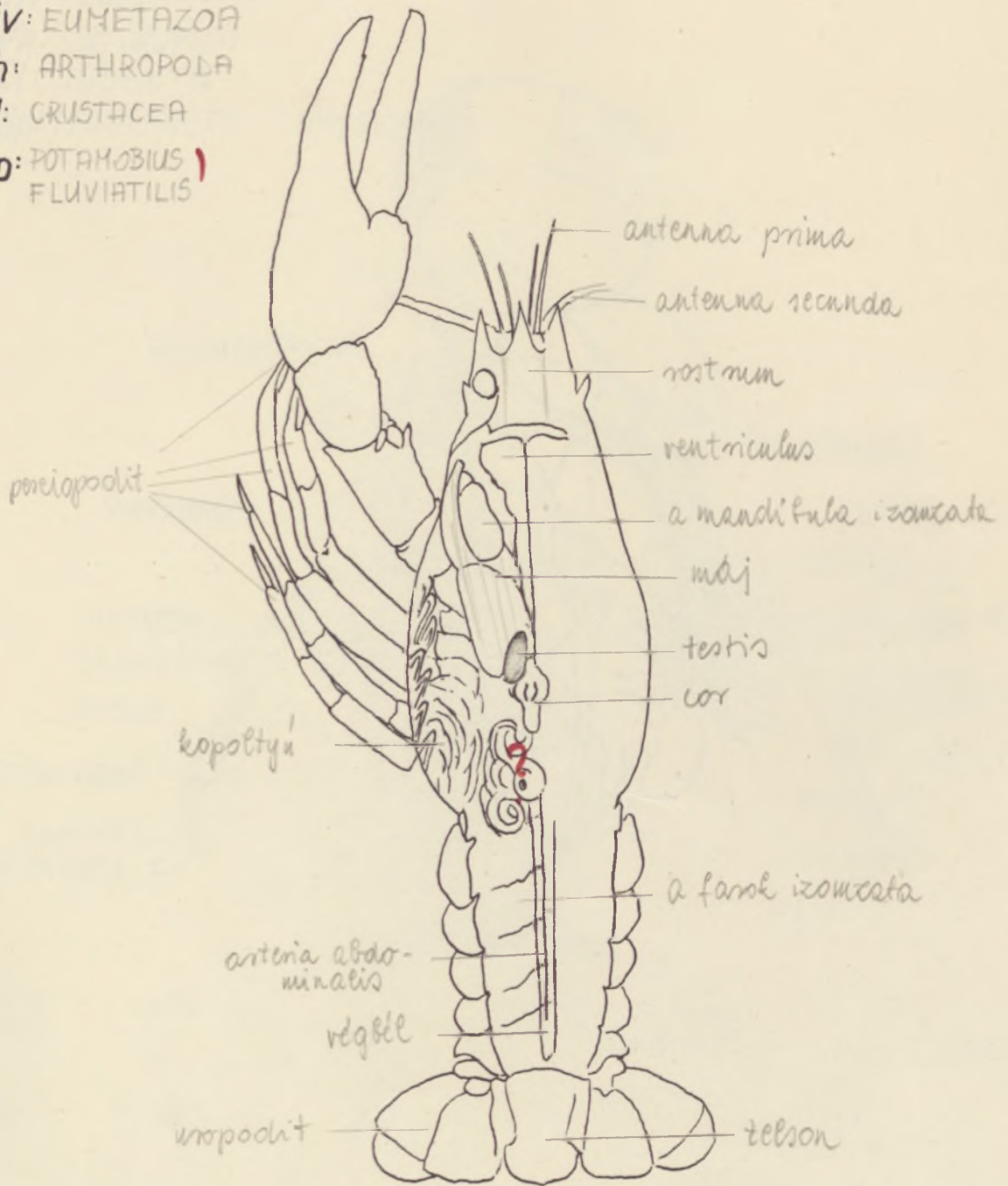


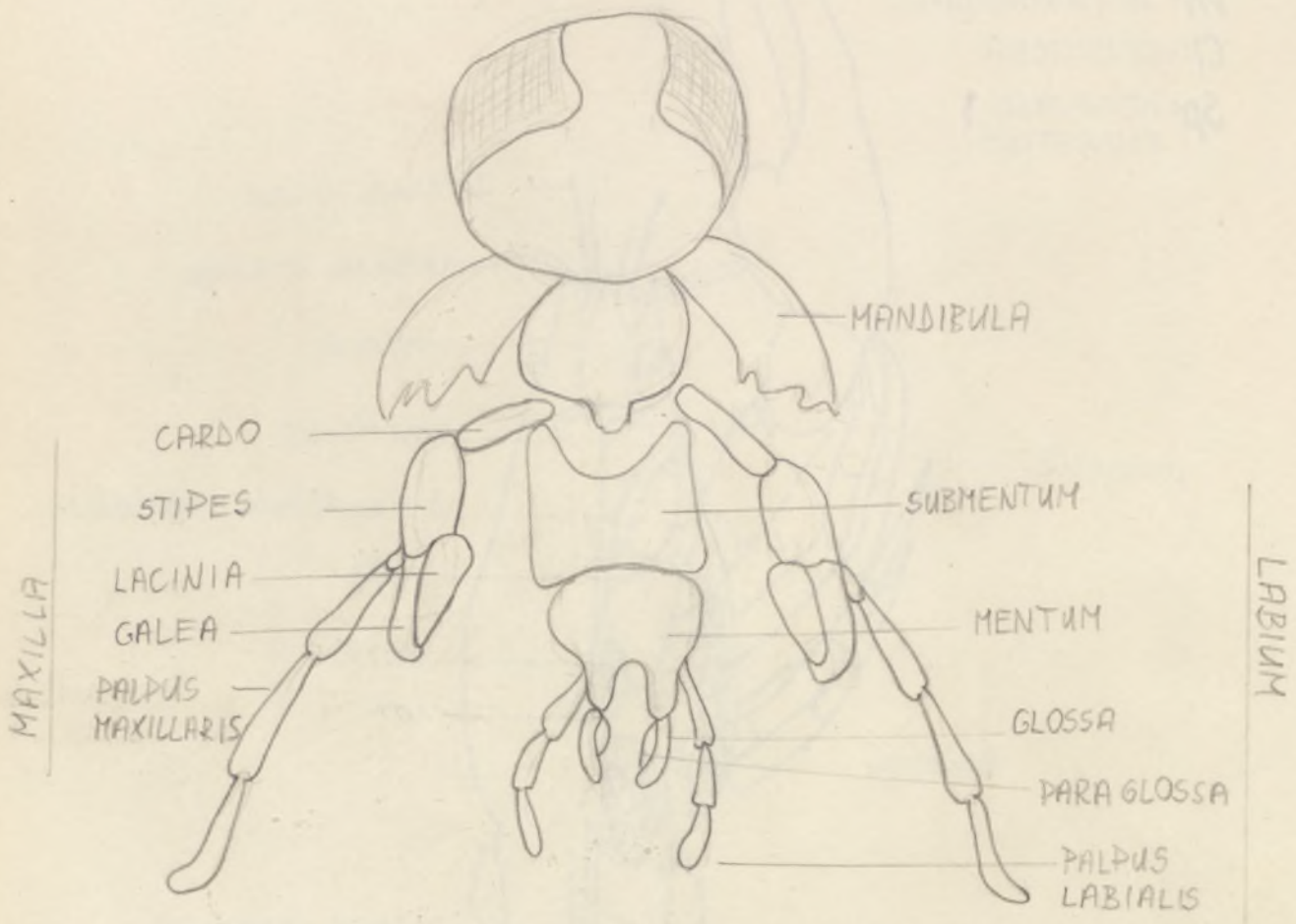
NŐSTÉNY

Subr: METAZOA
 Div: EUMETAZOA
 Ph: ANNELIDA
 Cl: OLIGOCHAETA
 Sp: LUMBRICUS
 TERRESTRIS

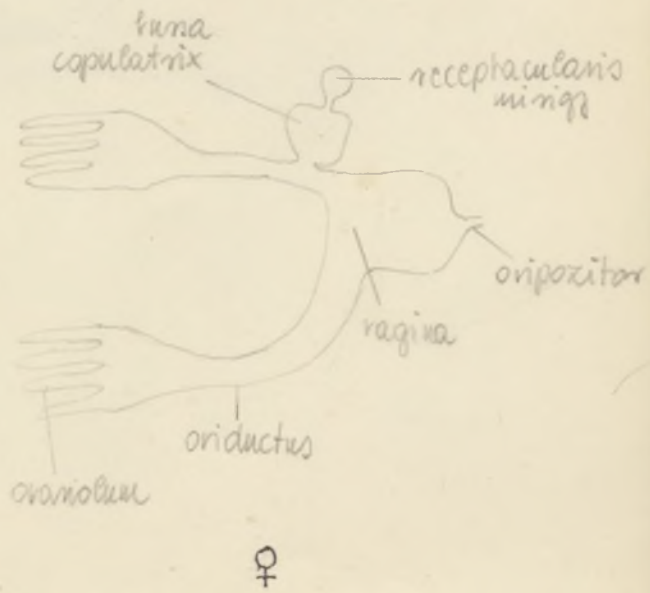
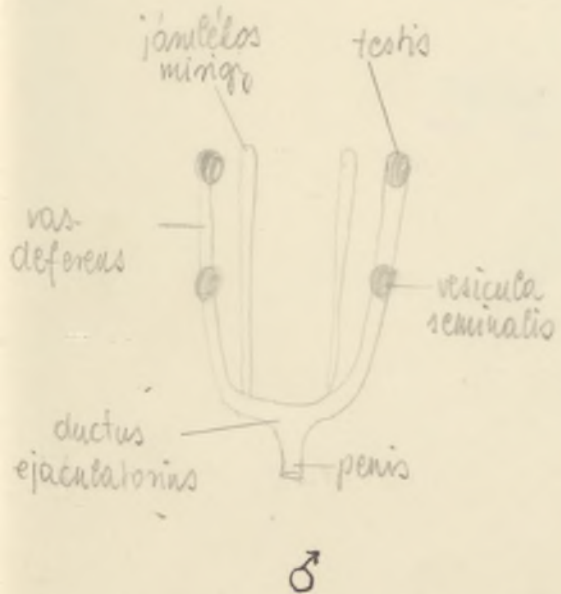
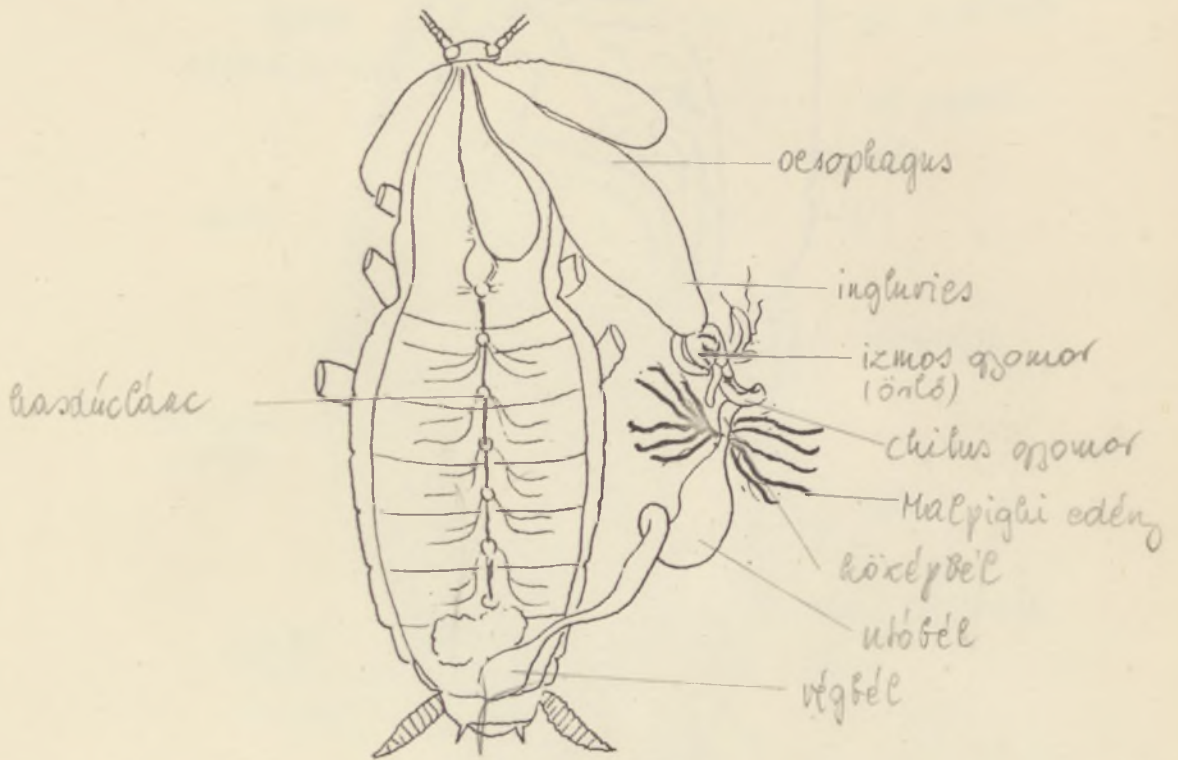


Subr: METAZOA
Div: EUMETAZOA
Ph: ARTHROPODA
Cl: CRUSTACEA
Sp: POTAMOBIVS
FLUVIATILIS

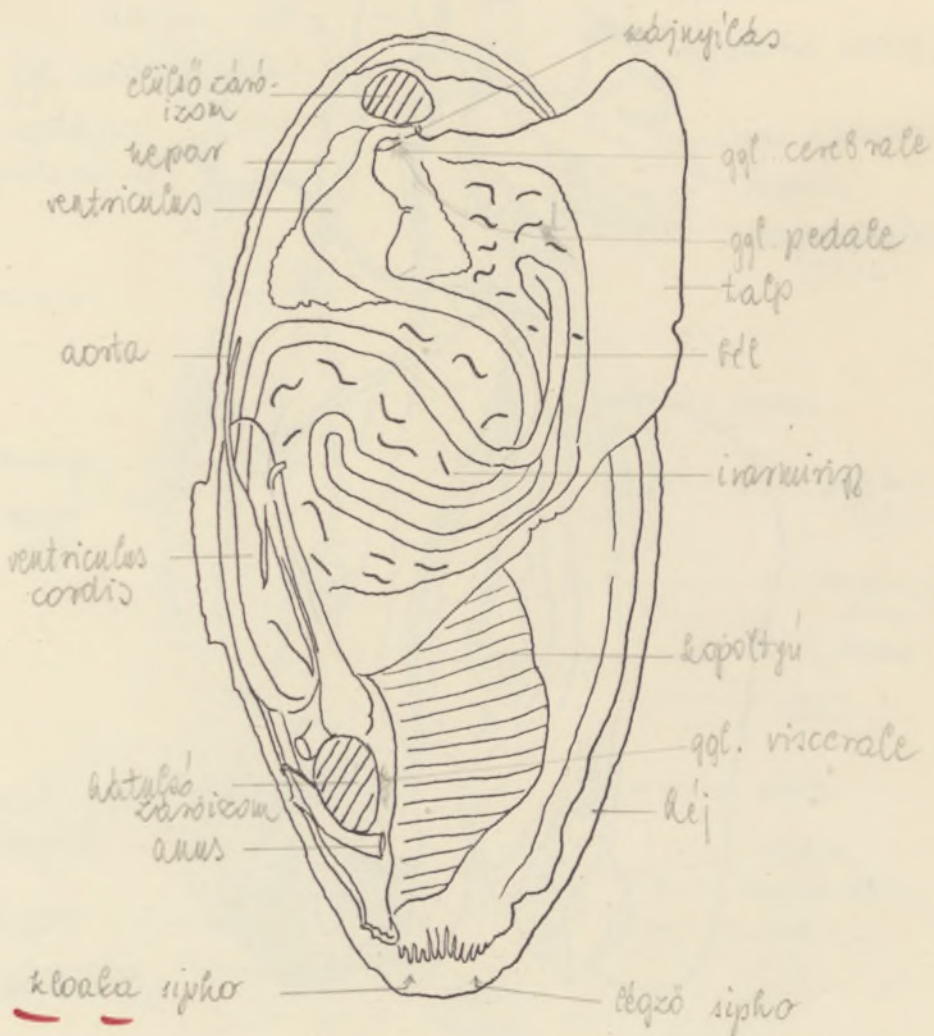




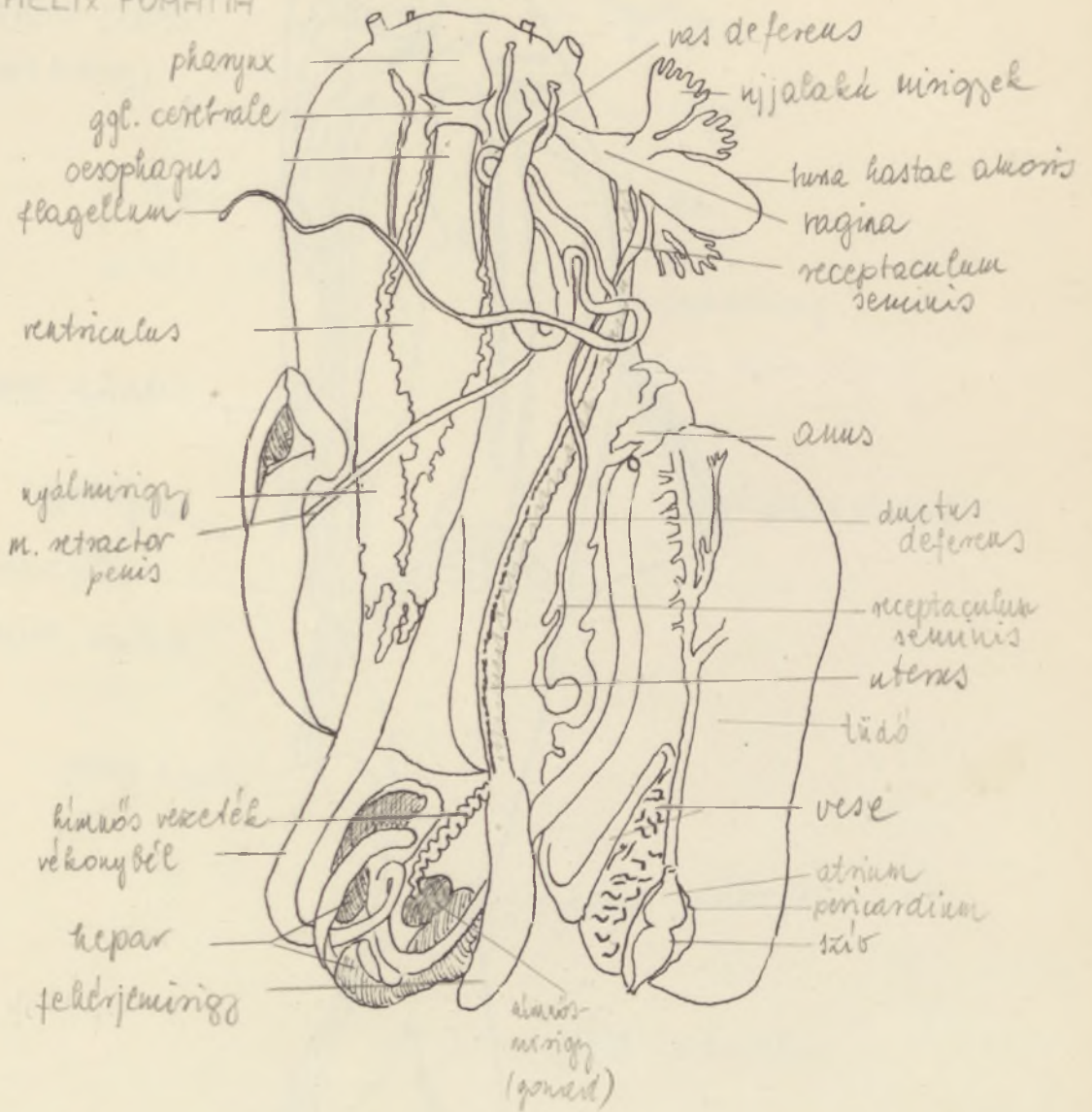
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Div: EUMETAZOA
Ph: ARTHROPODA
Cl: INSECTA
Sp: PERIPLANETA AMERICANA



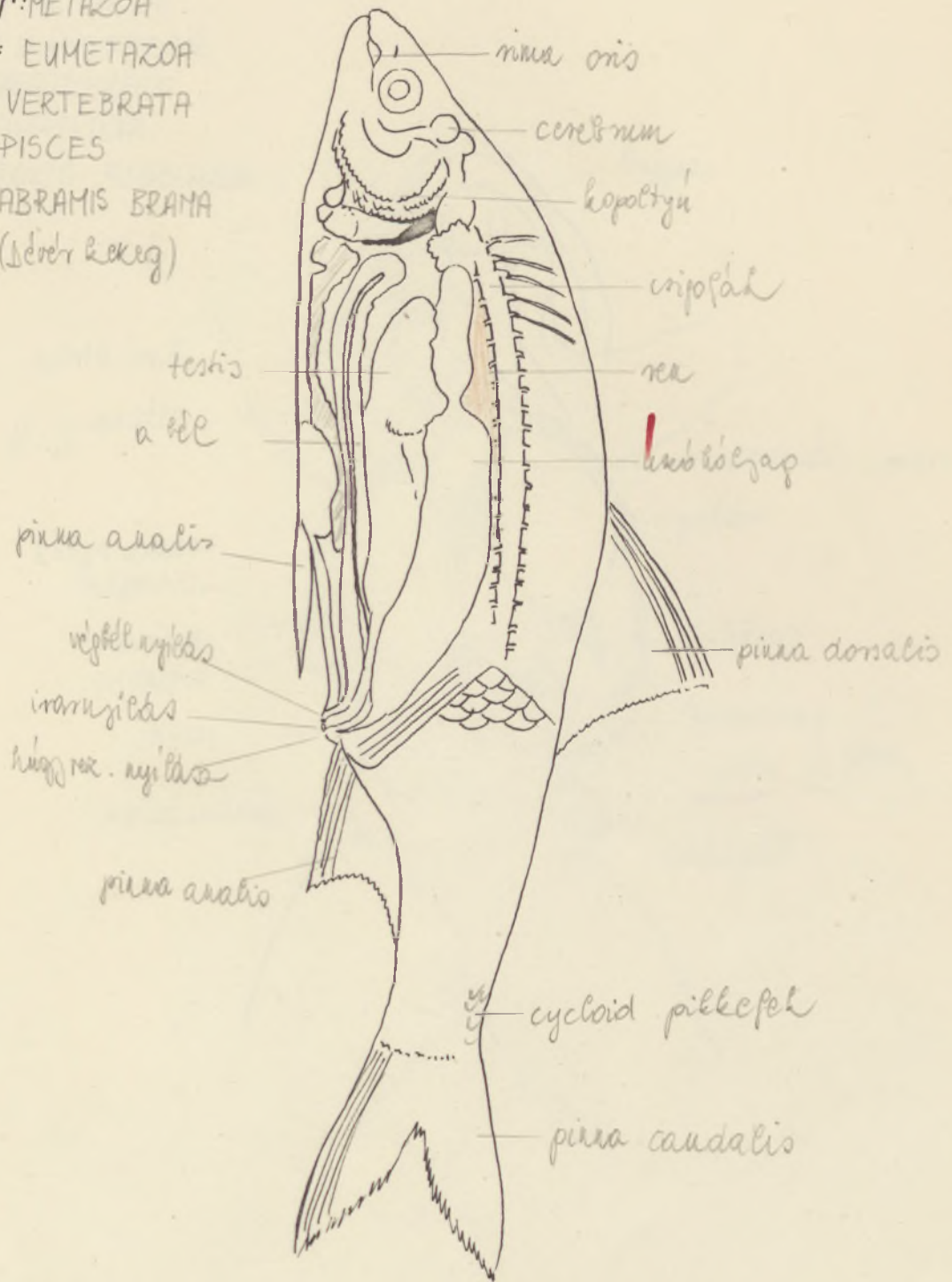
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Div: EUMETAZOA
Ph: MOLLUSCA
Cl: LAMELLIBRANCHIATA
Sp: UNIO CRASSUS



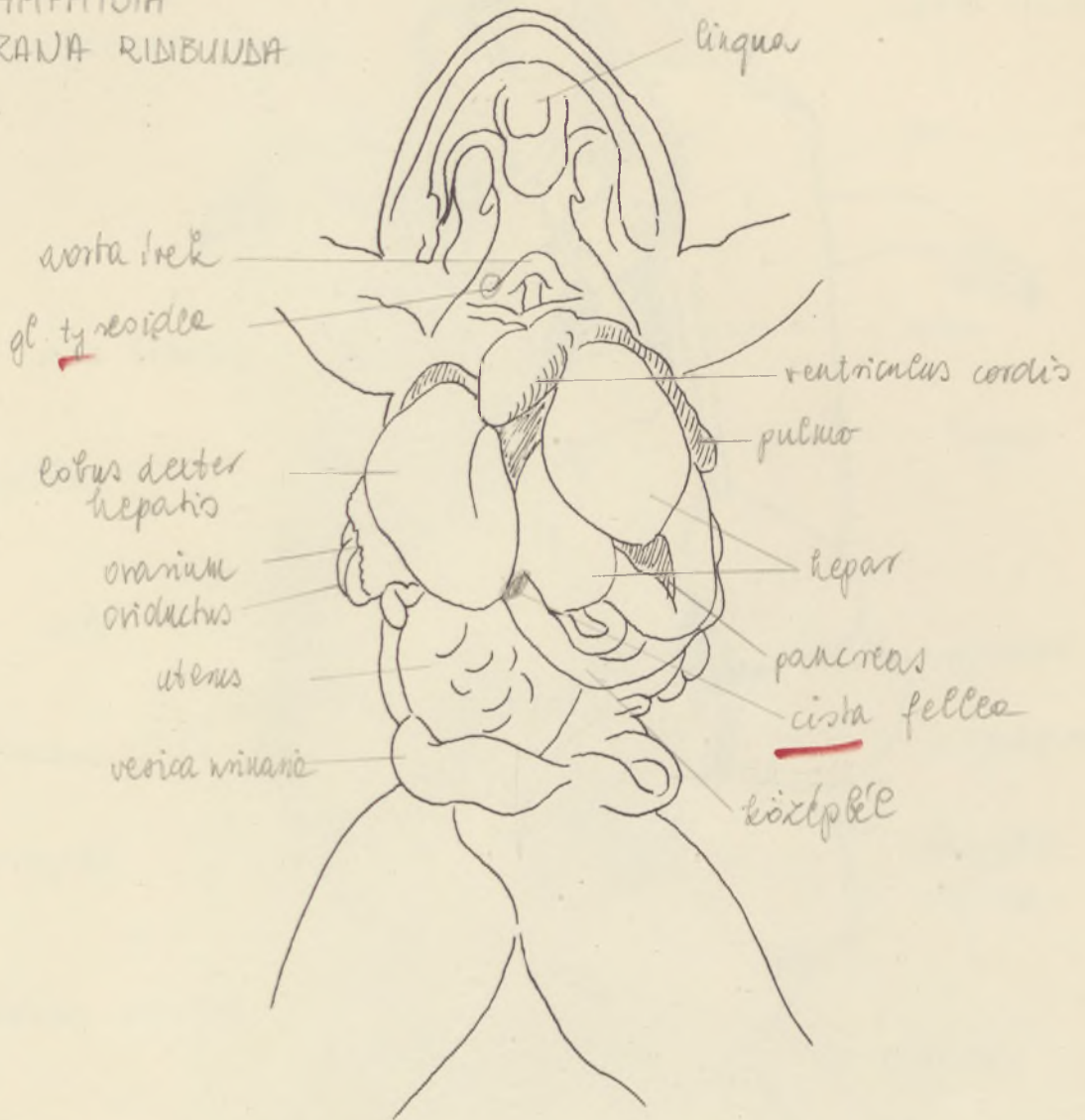
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Div: EUMETAZOA
Ph: MOLLUSCA
Cl: GASTROPODA
Sp: HELIX POMATIA



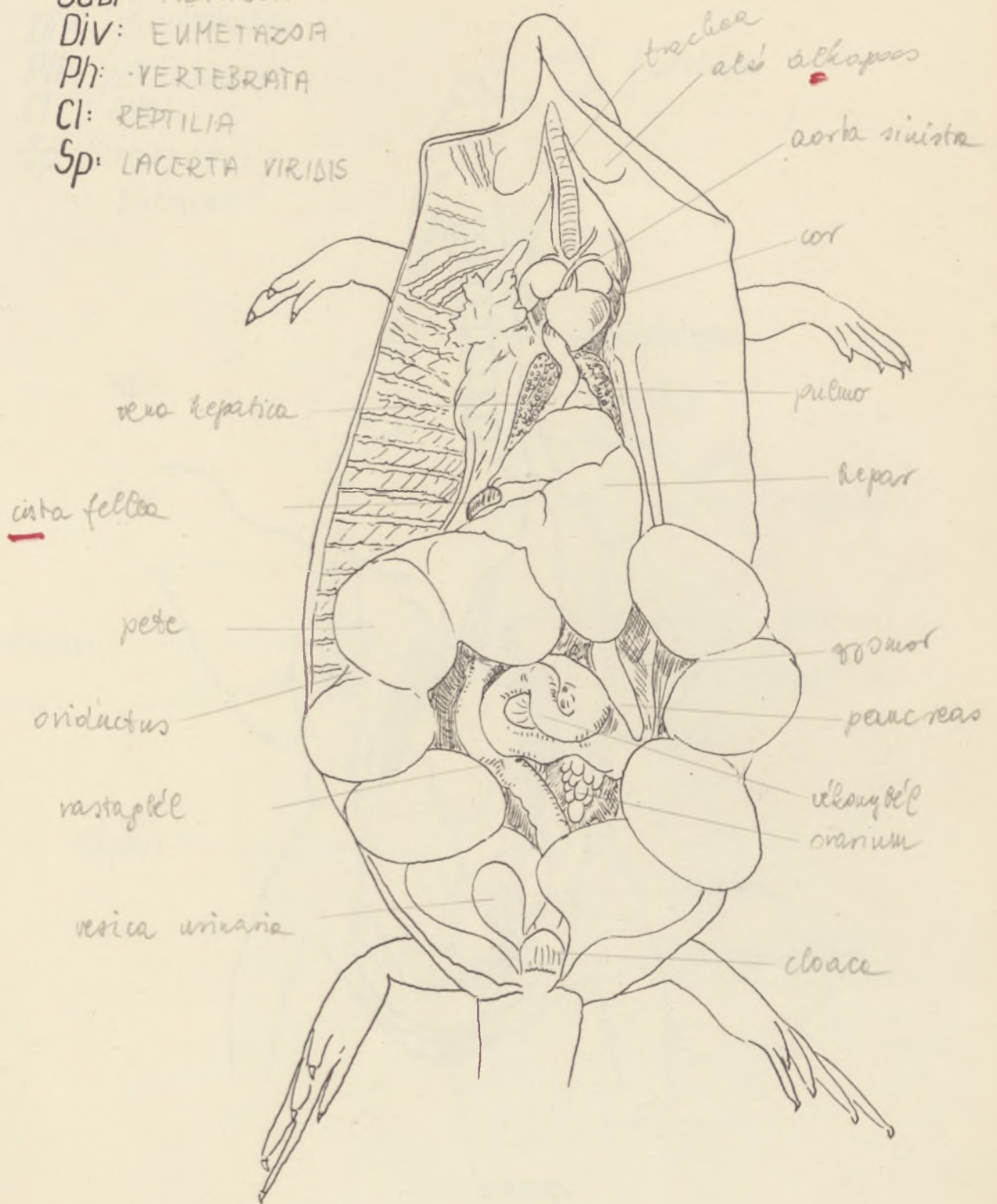
Subr: METAZOA
Div: EUMETAZOA
Ph: VERTEBRATA
Cl: PISCES
Sp: ABRAMIS BRAMA
(Dőrvér keszeg)



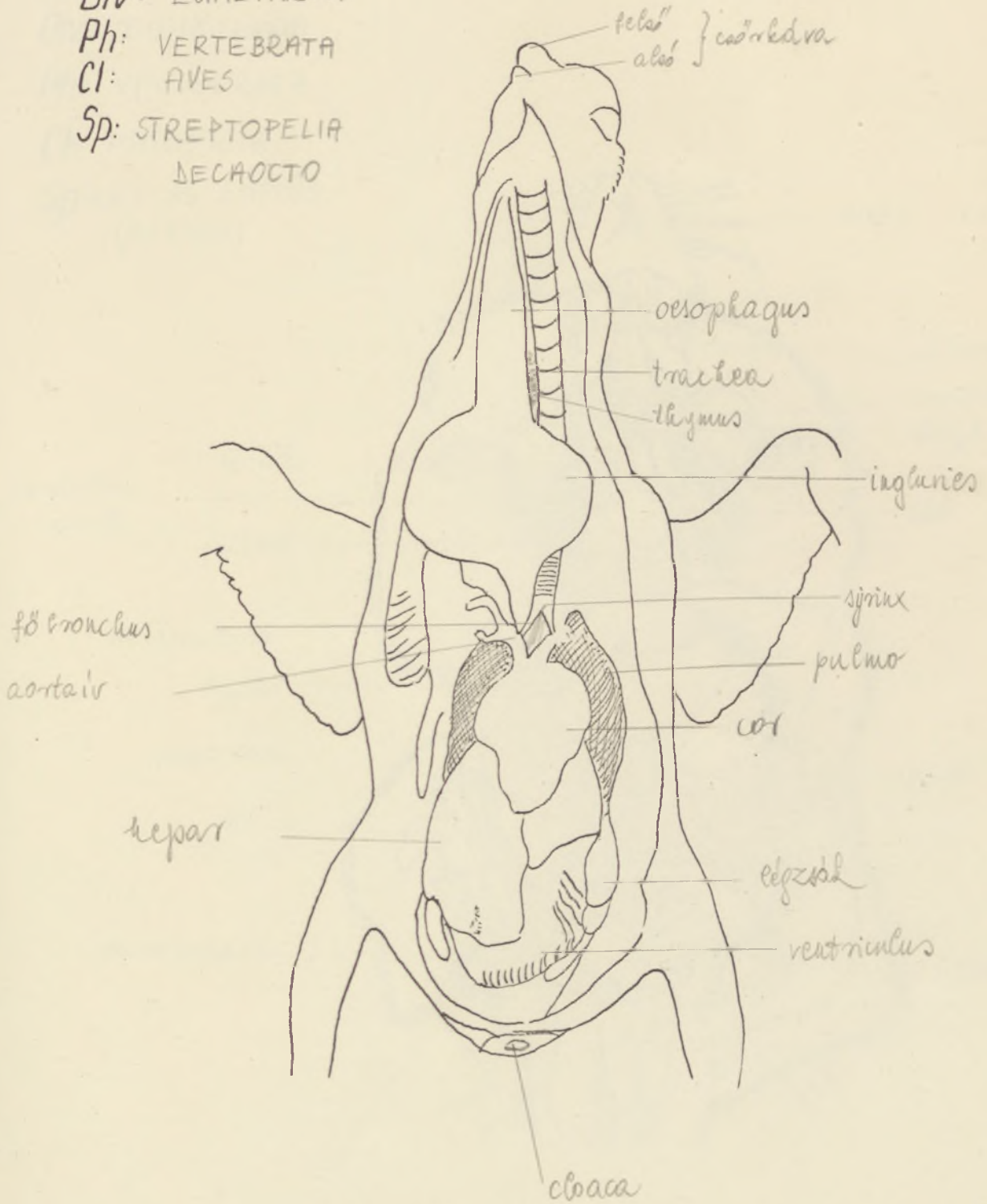
Subr: METAZOA
Div: EUMETAZOA
Ph: VERTEBRATA
Cl: AMPHIBIA
Sp: RANA RIBBUNDA



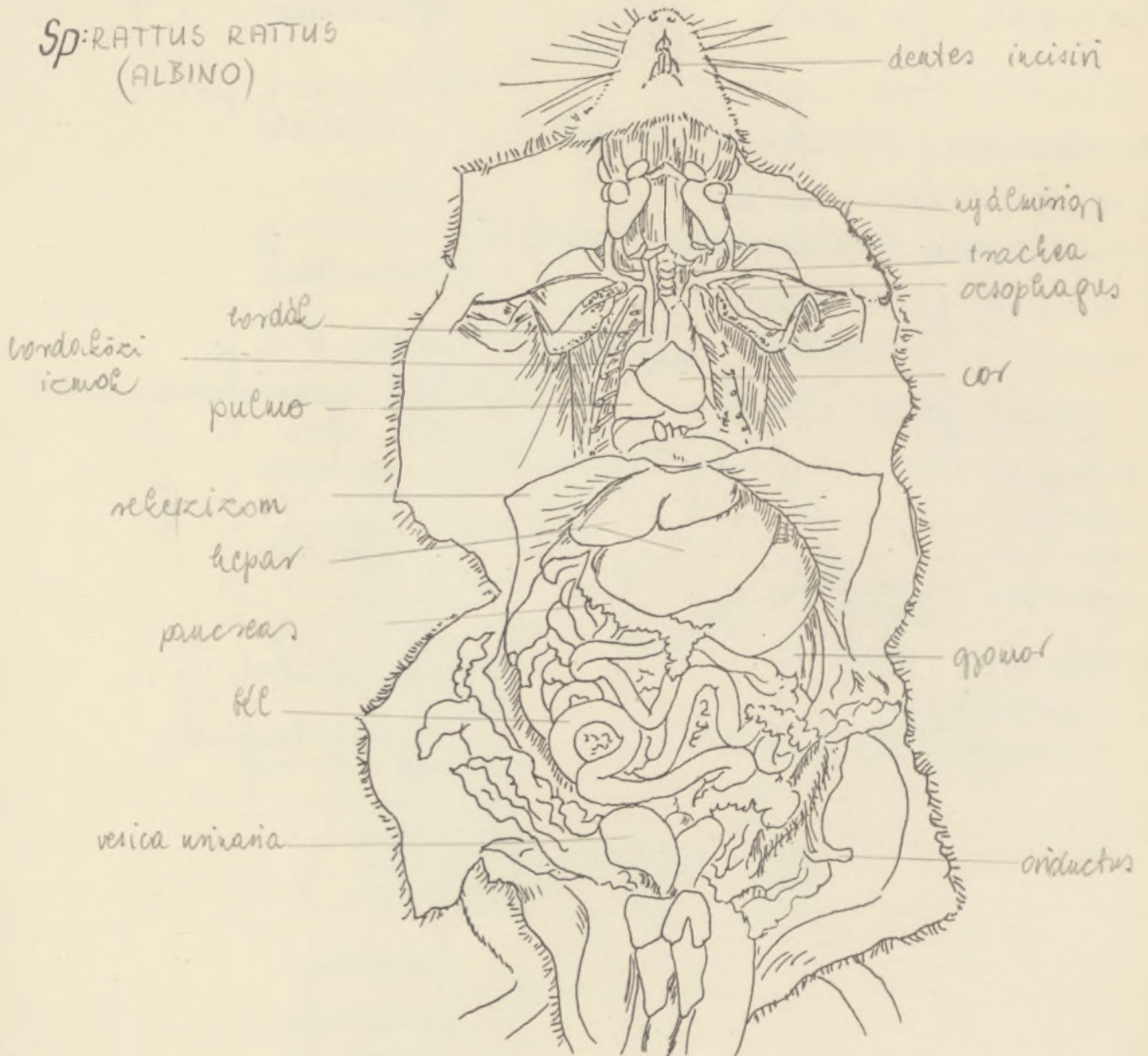
Subr: METAZOA
Div: EUMETAZOA
Ph: VERTEBRATA
Cl: REPTILIA
Sp: LACERTA VIRIDIS



Subr: METAZOA
Div: EUMETAZOA
Ph: VERTEBRATA
Cl: AVES
Sp: STREPTOPELIA
DECACTO



Subr: METAZOA
Div: EUMETAZOA
Ph: VERTEBRATA
Cl: MAMMALIA
Sp: RATTUS RATTUS
(ALBINO)



CRANIUM (Epozoa)

NEURO CRANIUM (agzropoza)

1. Occipitalis regio
2. Parietalis -"-
3. Frontalis -"-
4. Nasalis -"-
5. Oticus -"- (periotica)
6. Orbitalis -"-

I. OCCIPITALIS REGIO CSONTJAI

alul (1)	alul (2)	felül (2)
Basioccipitale	Occ. laterale	Supraocc. (Crista occ)

II. PARIETALIS REGIO CSONTJAI

Basisphenoides	Alisphenoides	Parietale
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III. FRONTALIS REGIO CSONTJAI

Praesphenoides	Orbitosphenoides	Frontale
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IV. NASALIS REGIO CSONTJAI

Vomer	Ethmoides	Nasale
-------	-----------	--------

V. OTICUS REGIO CSONTJAI

- Prooticum
- Epioticum
- Intercalare
- Pteroticum (squamosum) hüvelykcső

VI. ORBITALIS REGIO

- supraorbitale
- infraorbitale I. II. III. IV. V. (lacrymale)

PLANCO CRANIUM (anekoponyá)

I. állkapori ív

- felül: palatoquadratum
- prae-maxillare
- maxillare
- palatinum
- quadratum
- ecto-uro-metapterygoides
- symplectium

alul: Meckel-f. porc mandibula

- dentale
- angulare
- articulare

II. Nyelcsont ív

- felül: hyomandibulare (usakal) → fülcs
- alul: hyale
- stilo hyale
- epi -"-
- kerato -"-
- typo -"-
- bari -"-
- uro -"-

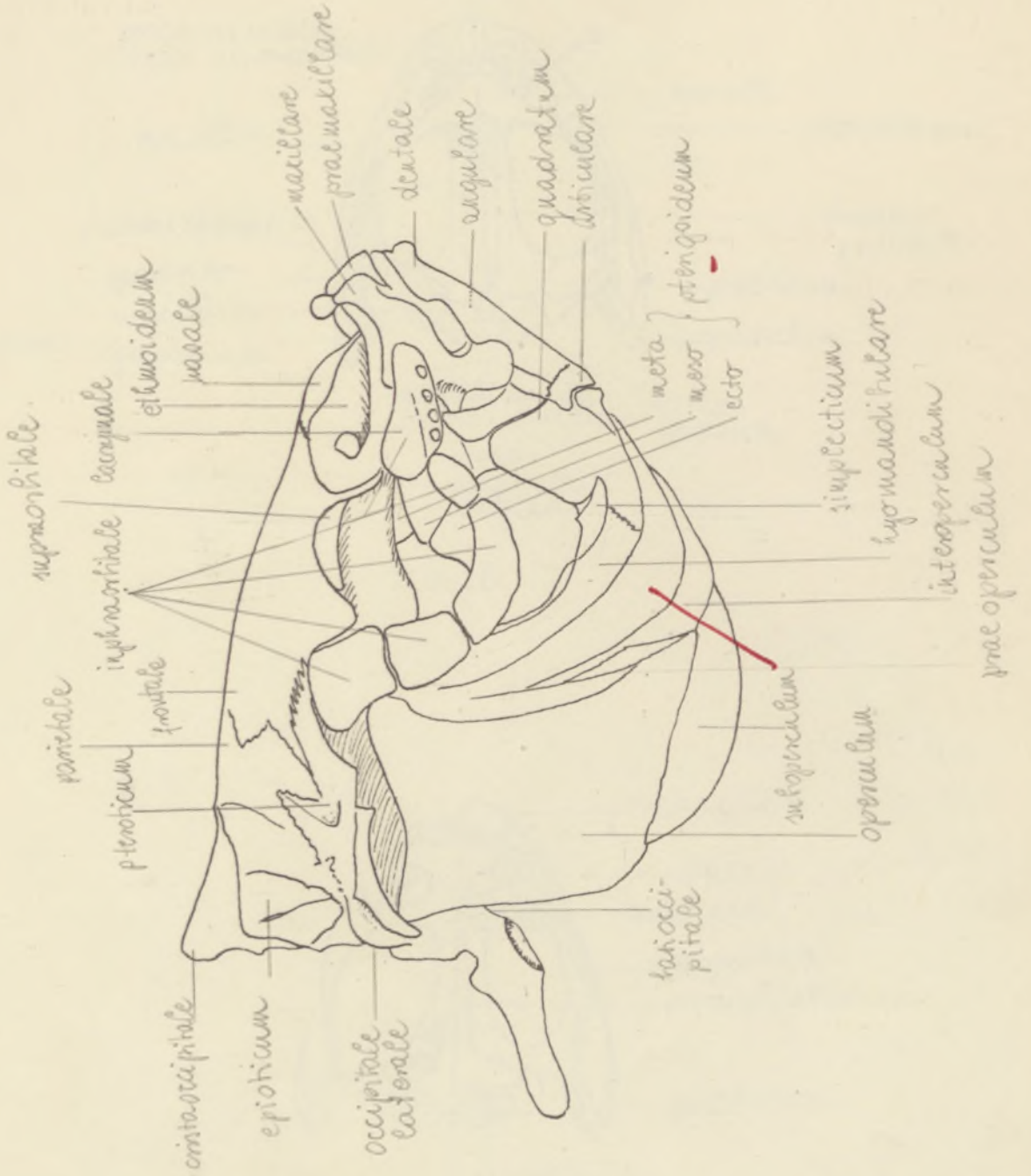
III. Branchialis ív

- pharyngobranchiale
- epi -"-
- kerato -"-
- typo -"-
- bari -"-

- operculum
- interoperculum
- praoperculum
- suboperculum

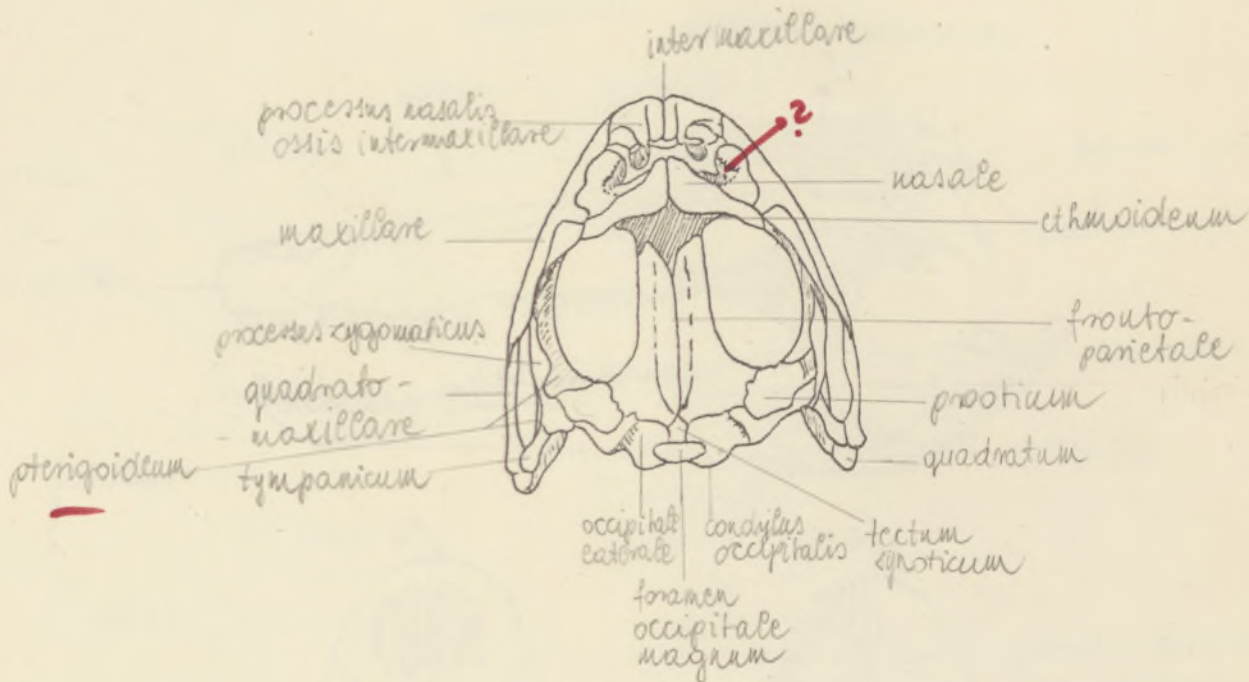


HAL : KOPONYA

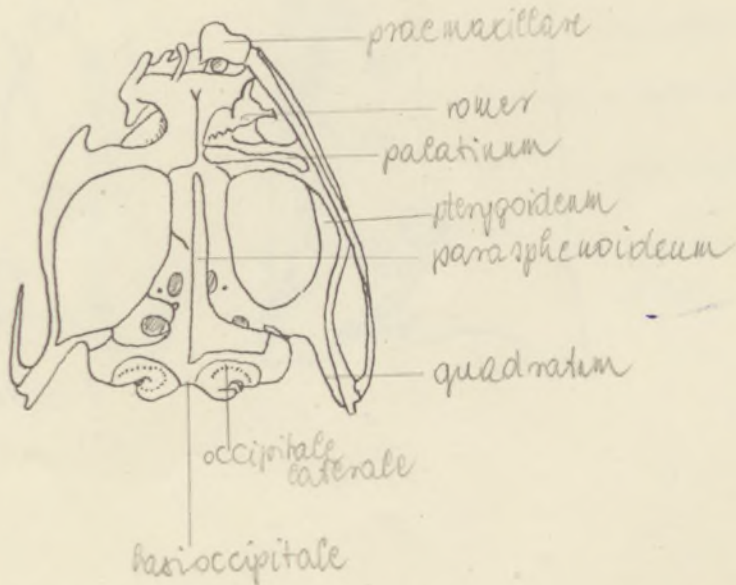


RANA: KOPONYA

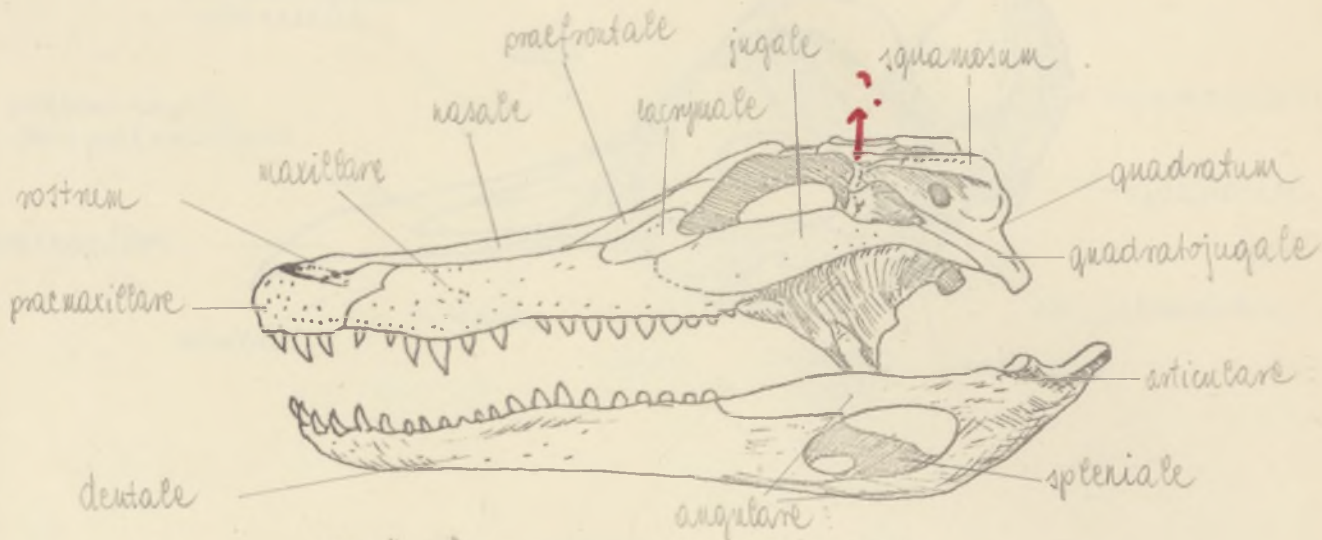
FELÜLRÖL



ALULRÖL

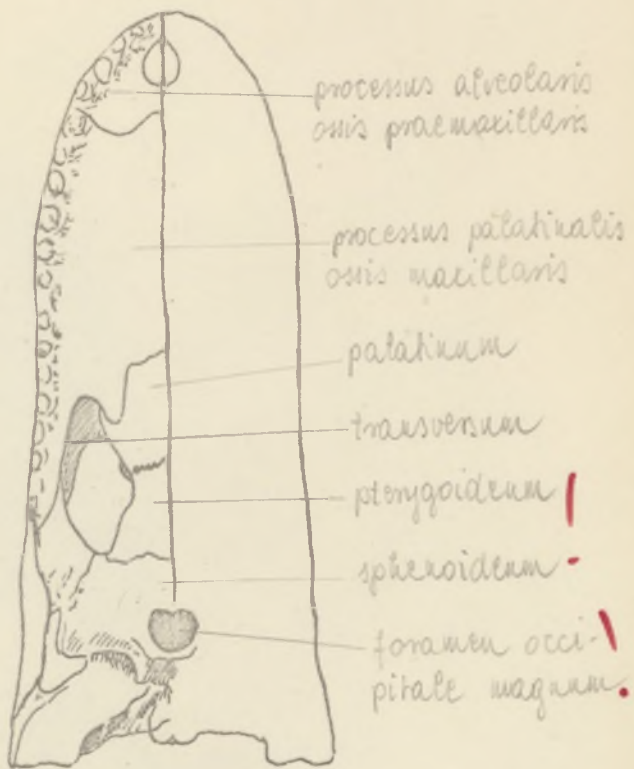
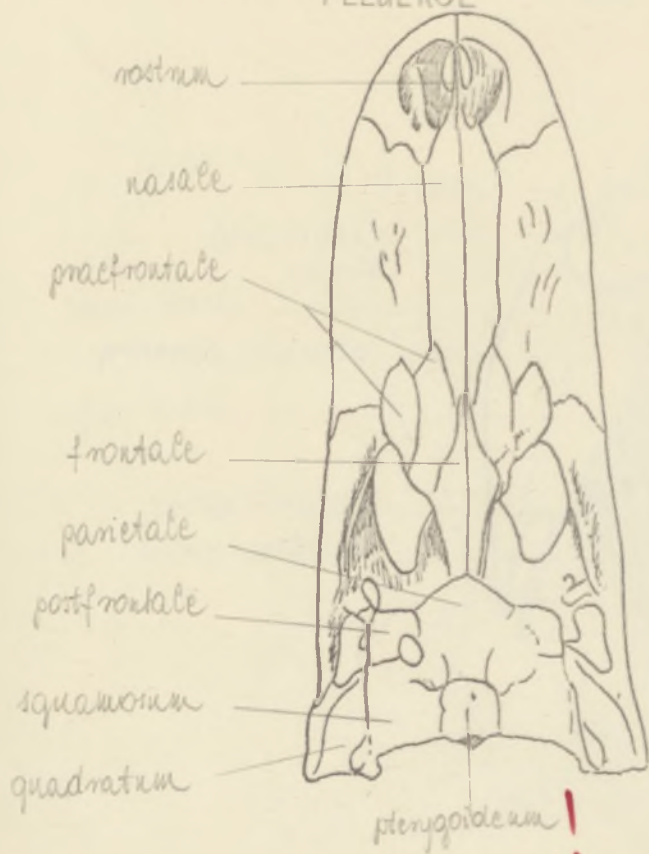


ALLIGATUS : KOPONYA

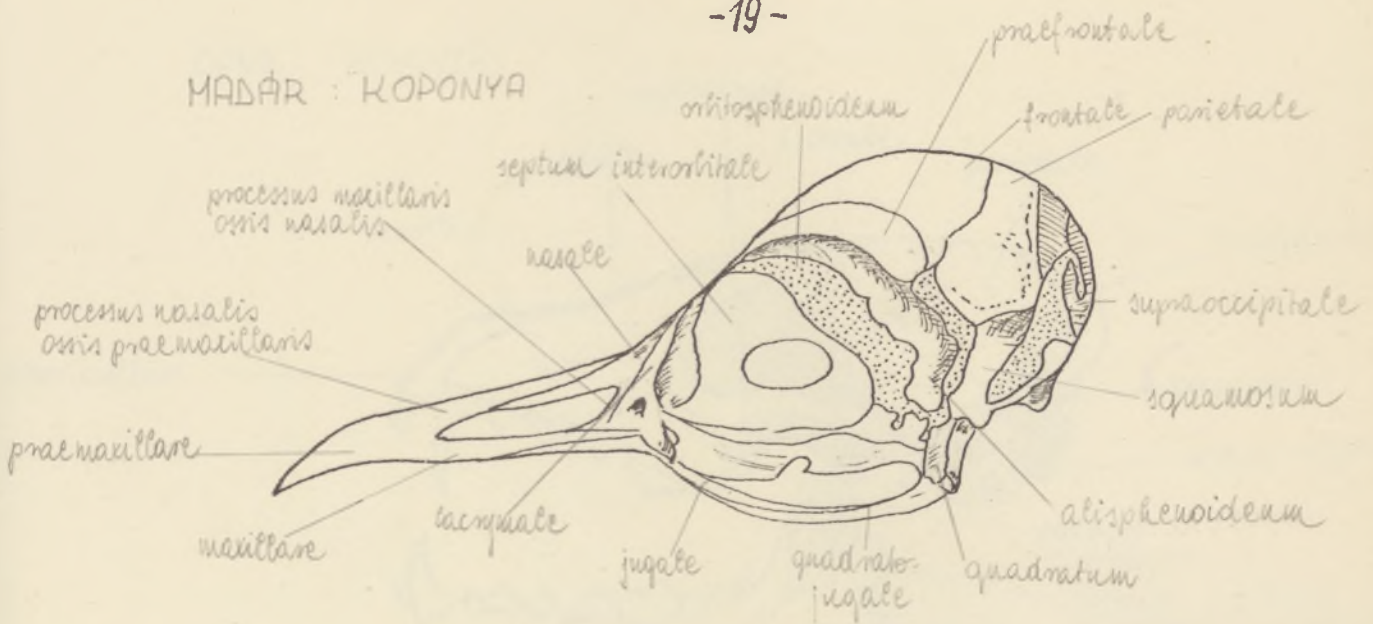


FELÜLRÖL

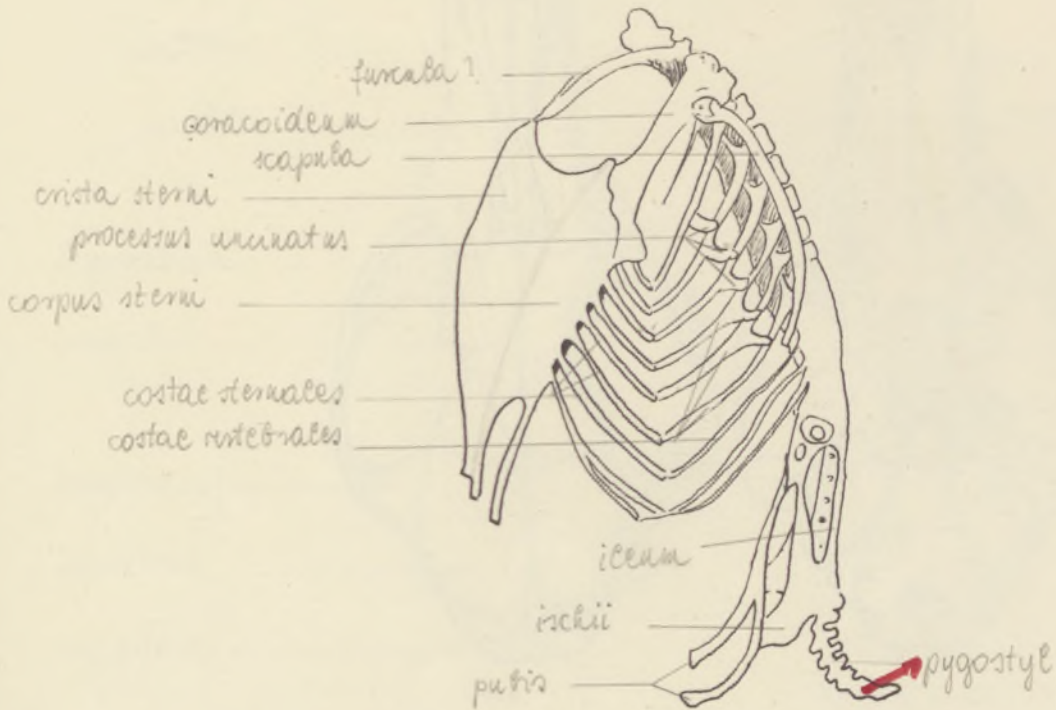
ALULRÖL



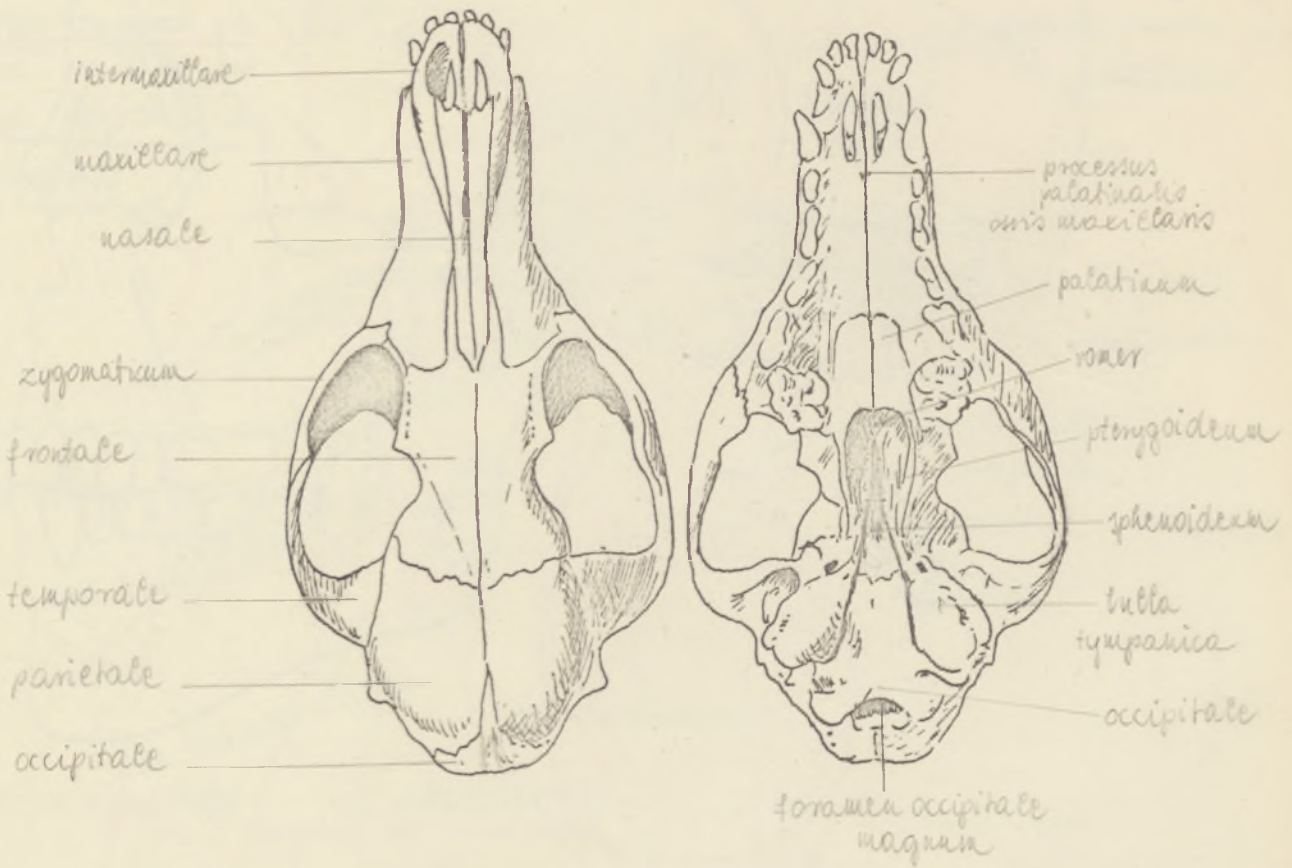
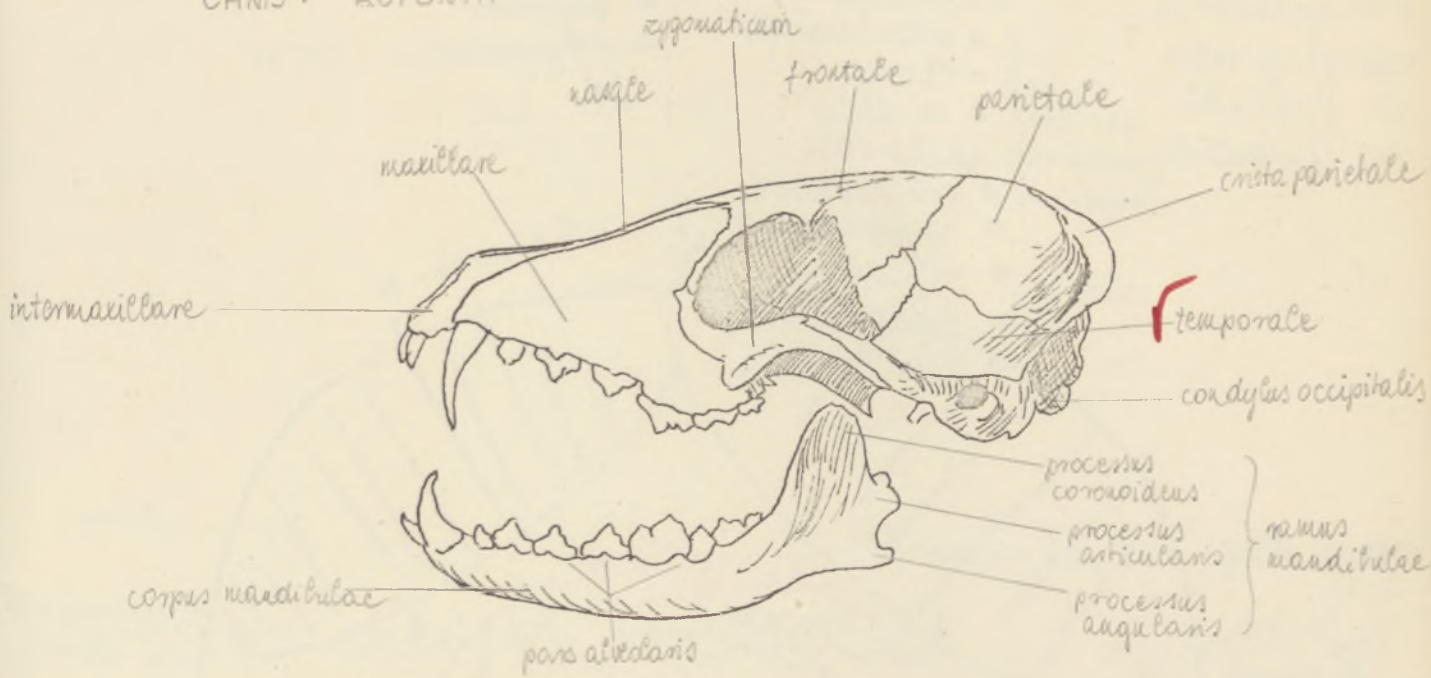
MADÁR : KOPONYA



TÖRZS



CANIS : KOPONYA



FELÜLRÖL

ALÜLRÖL

I. Fej izmai

nyak izmai

III. Törts izmai

vep tap izmai

Mimikai (VII)

nyak izmai (V)
h. kand.

Fejtetői
galea aponeurotica
m. occipitalis
m. frontalis
m. auricularis

arizmai i
1. szemközi
m. orbicularis oculi
2. orrközi
m. nasalis
3. szájközi
m. orbicularis oris
m. quadratus latis
m. zipszoides
m. trianguláris
m. fuccinabol

m. masseter
m. temporalis
m. pterygoideus
ext. int.

anterior
posterior
superior

sup.
inf.

nyak izmok

Felületi
platysma
m. sternocleidomas-
toides

nyelvszouti i.

Mézfekvésű nyakizmok

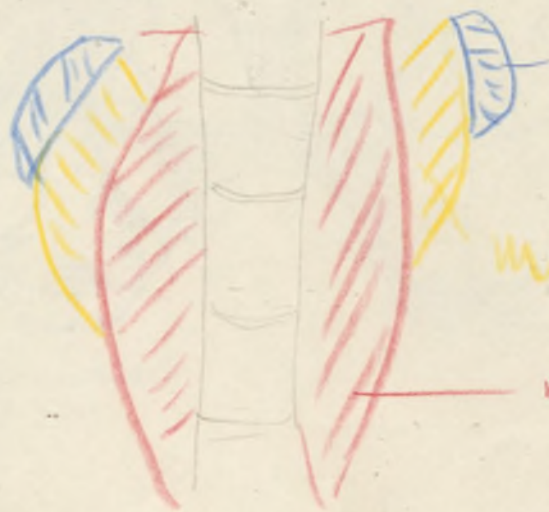
nyelvszout
felebi i.

nyelvszout
alatti i.

m. longus colli
m. - v - capitis
m. rectus capiti
anterior

m. digastricus
m. stilohyoideus
m. mylohyoideus
m. periohyoideus

m. sternohyoideus
m. omohyoideus
m. thyrohyoideus

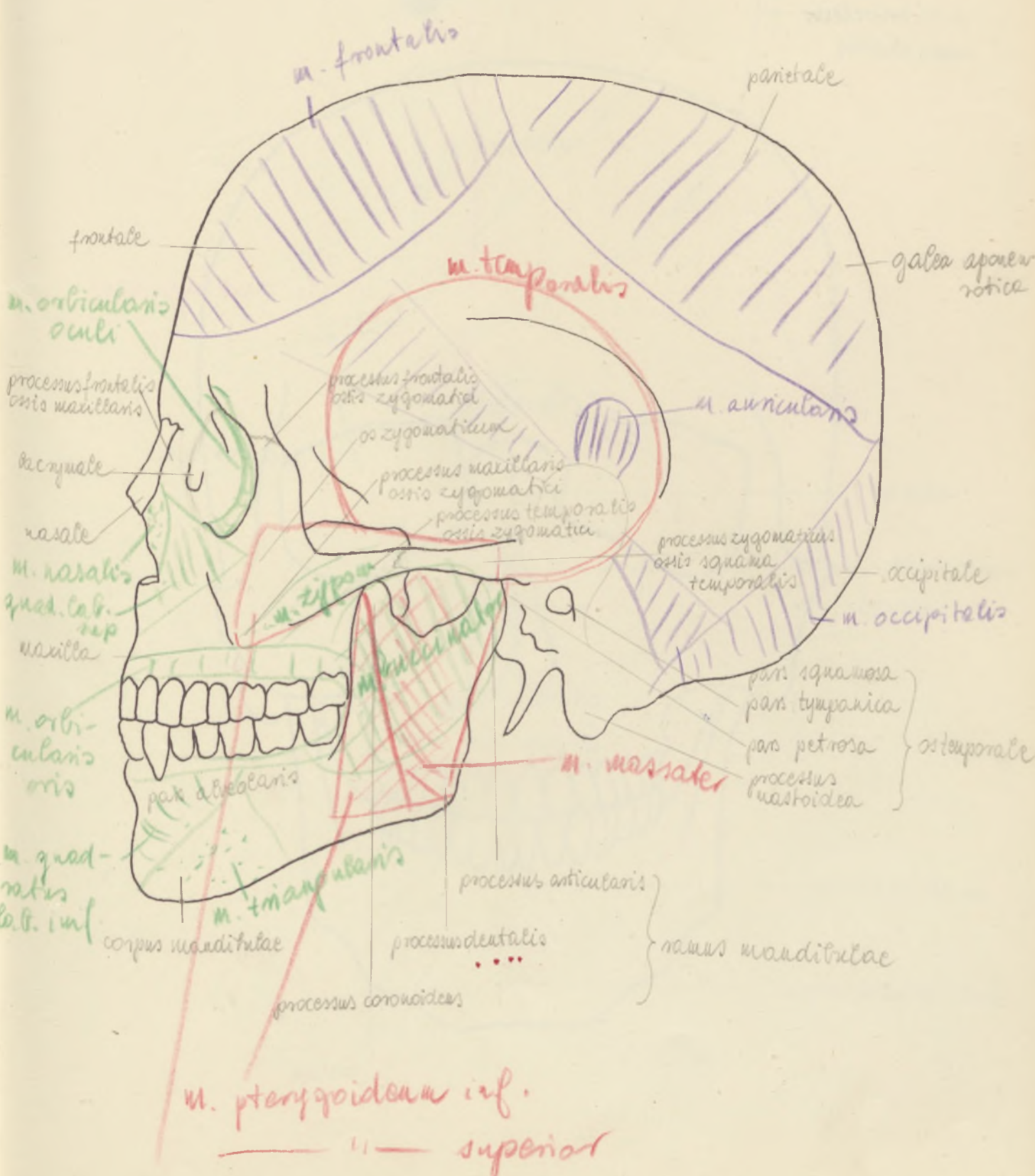


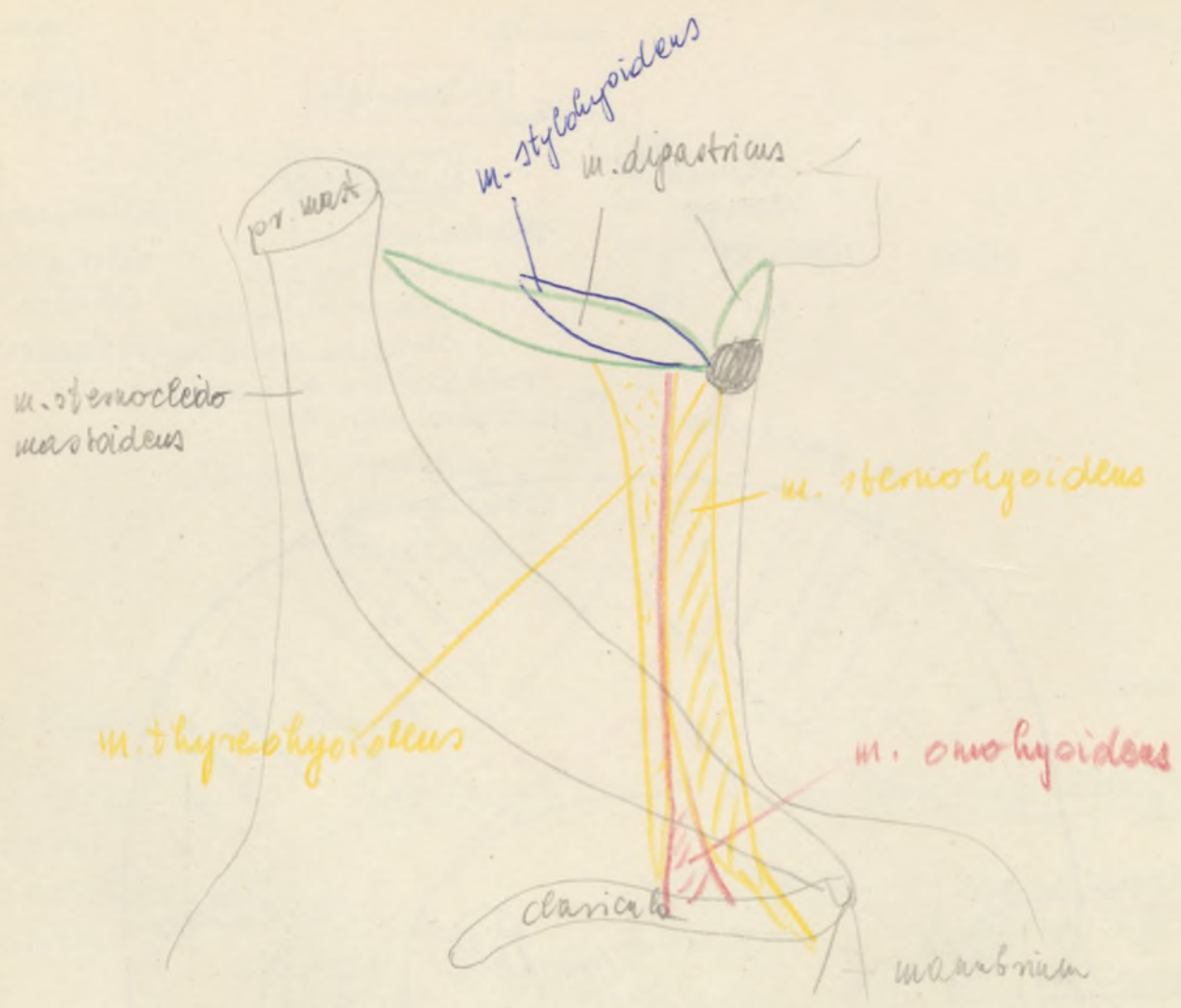
m. (longus) capiti anterior
rectus

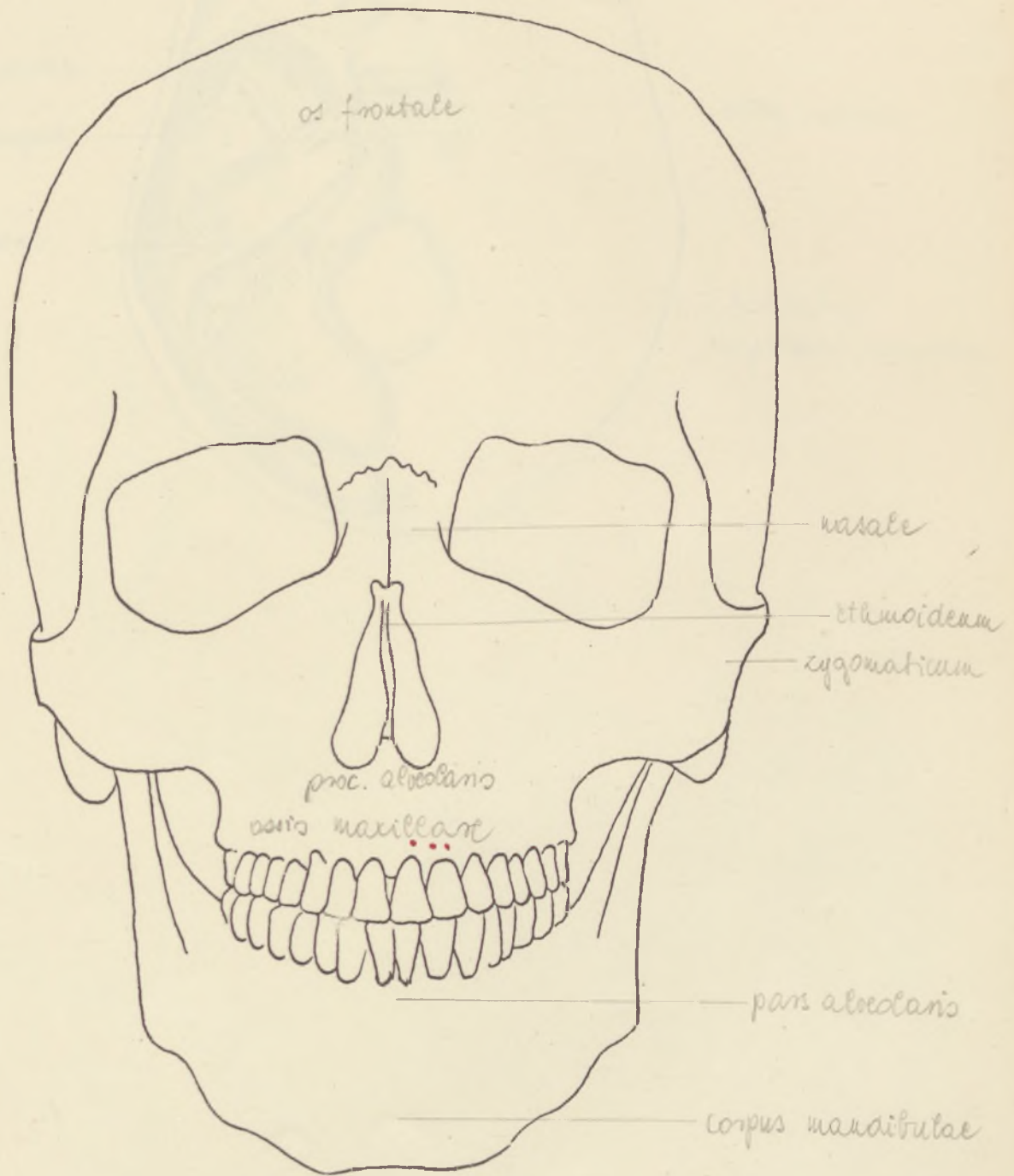
m. longus capitis

m. longus colli

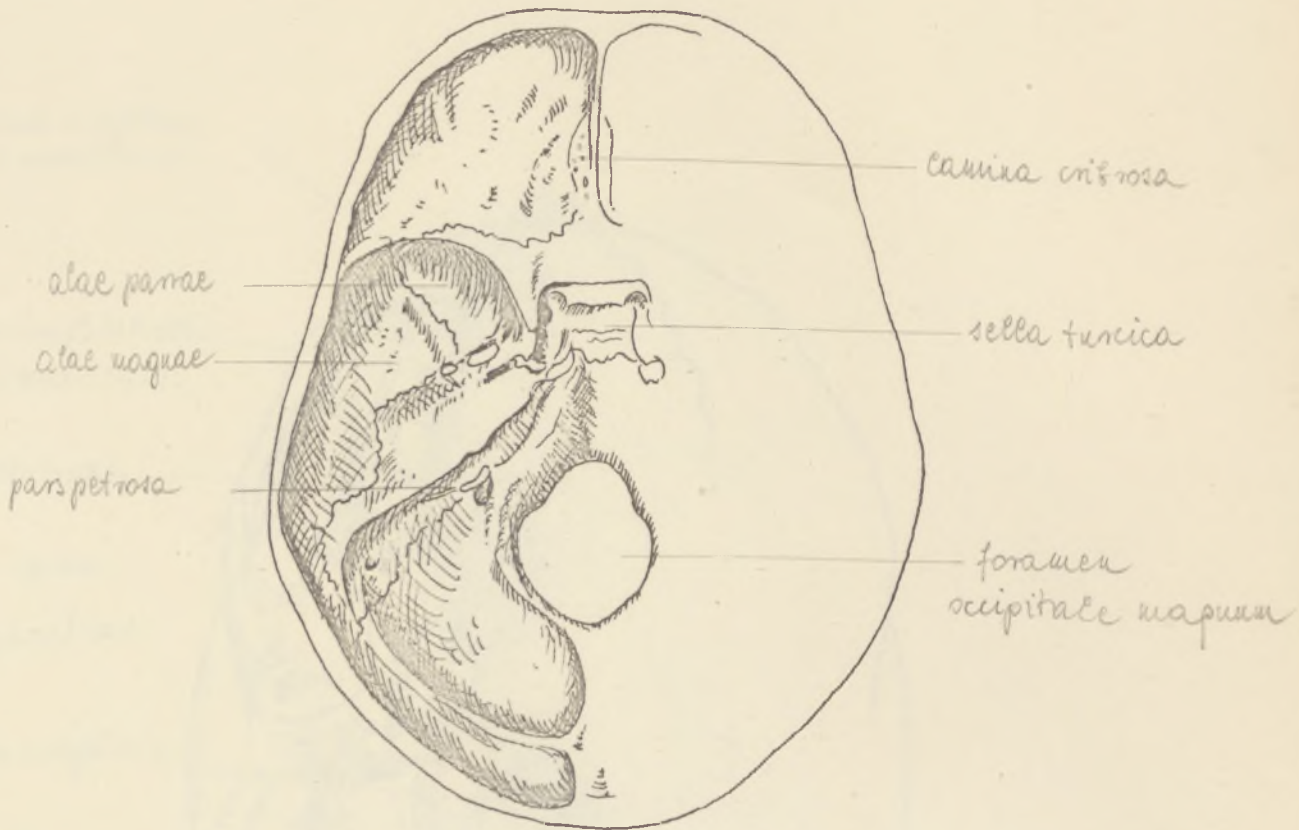
HOMO: KOPONYA

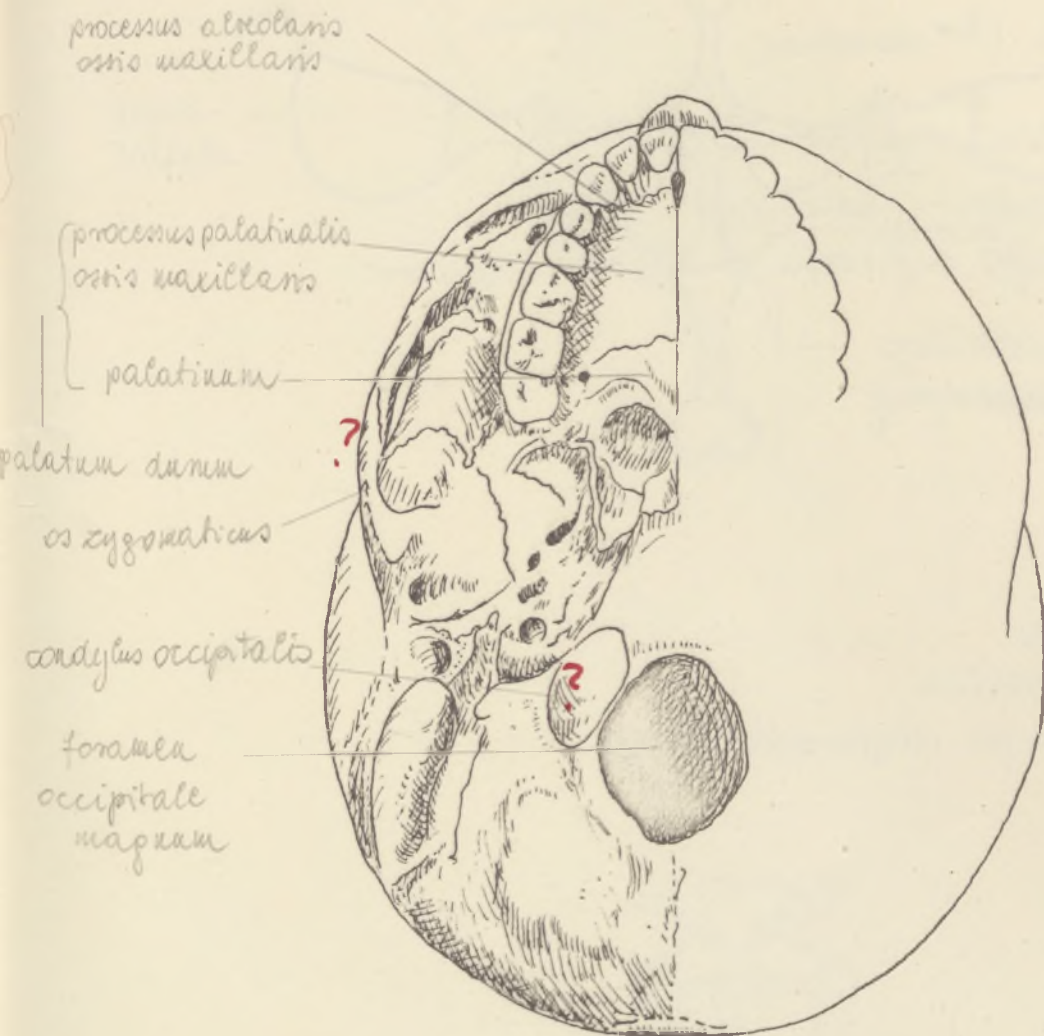






HOMO: KODONYA





VÉGTAGOK

keiroptenigium típusú

pentadactylus — ötsugarú

I. elülső karhad néptag

humerus

radius (kís.)

ulna

carpalia — kértő

metacarpalia — kézbőzések

phalanges digitorum — ujjpercek

II. hátsó karhad néptag

femur

tibia

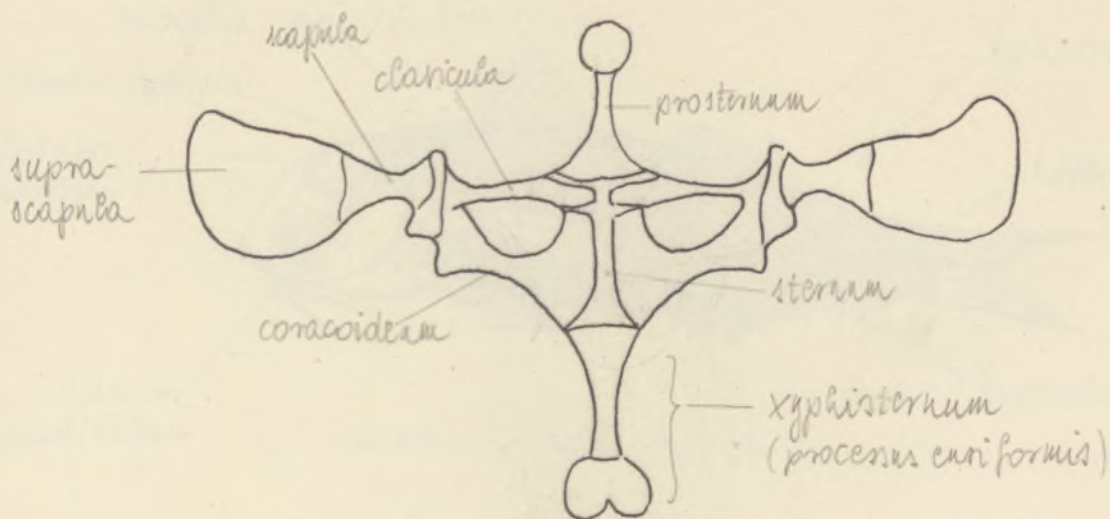
fibula

tarsalia

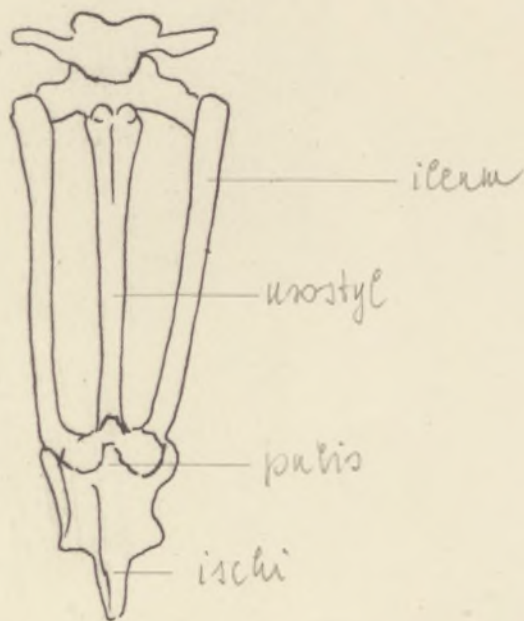
metatarsalia

phalanges digitorum

HELLCSONT ÉS A VÁLLÖV

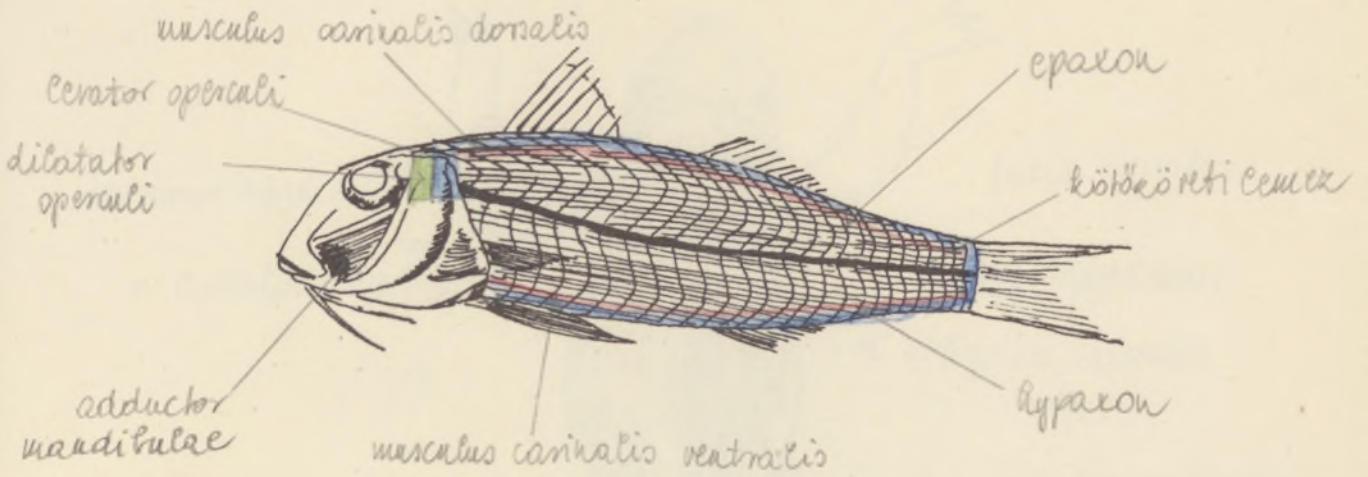


MELENCEÖV

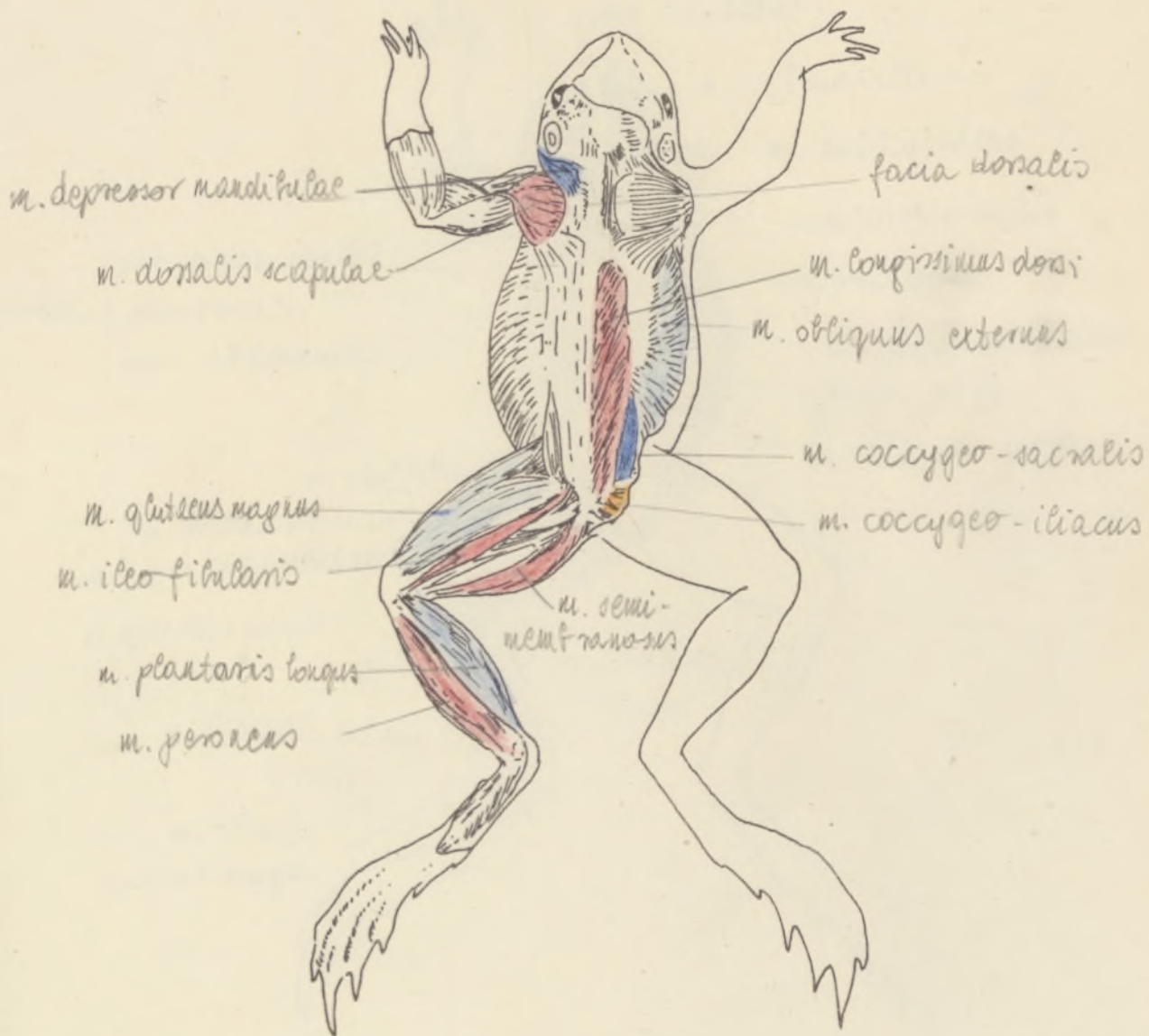


L. G. M.

A HAL IZMAI

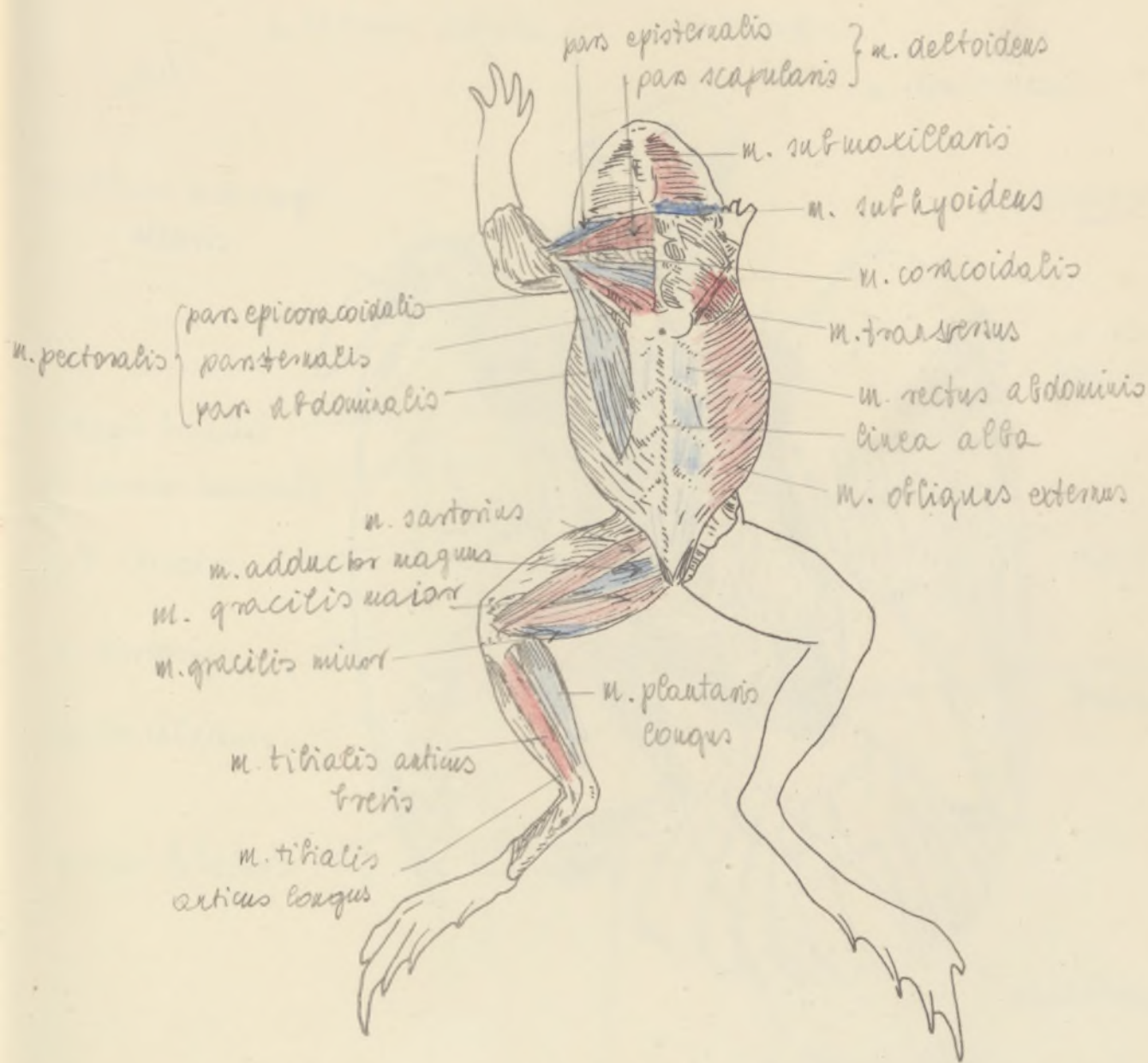


BÉKA IZOMRENDŐZÉS FELÜLRŐL



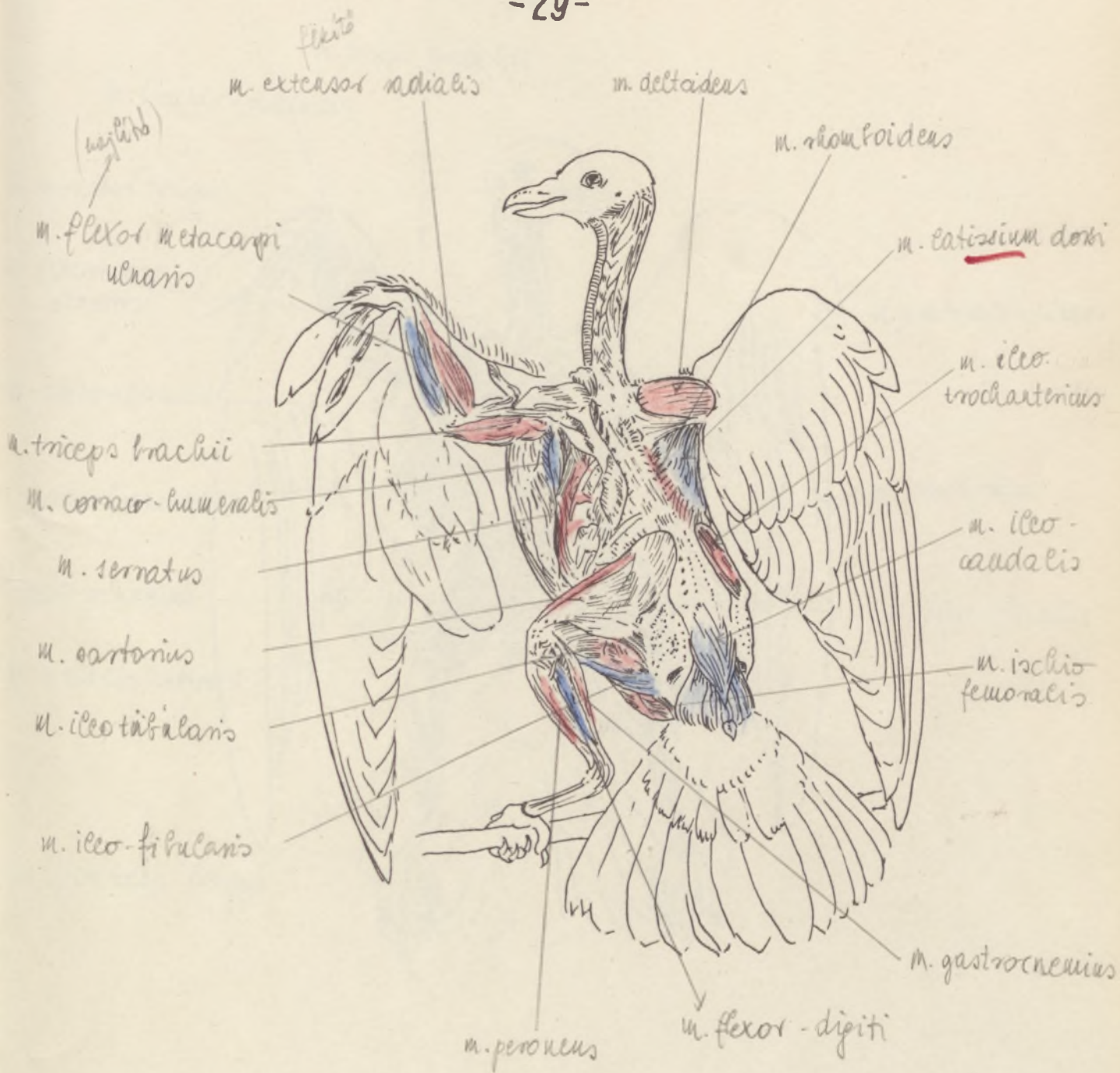
A BÉKA IZOMZATA (ELŐLEŐL)

- 28 -



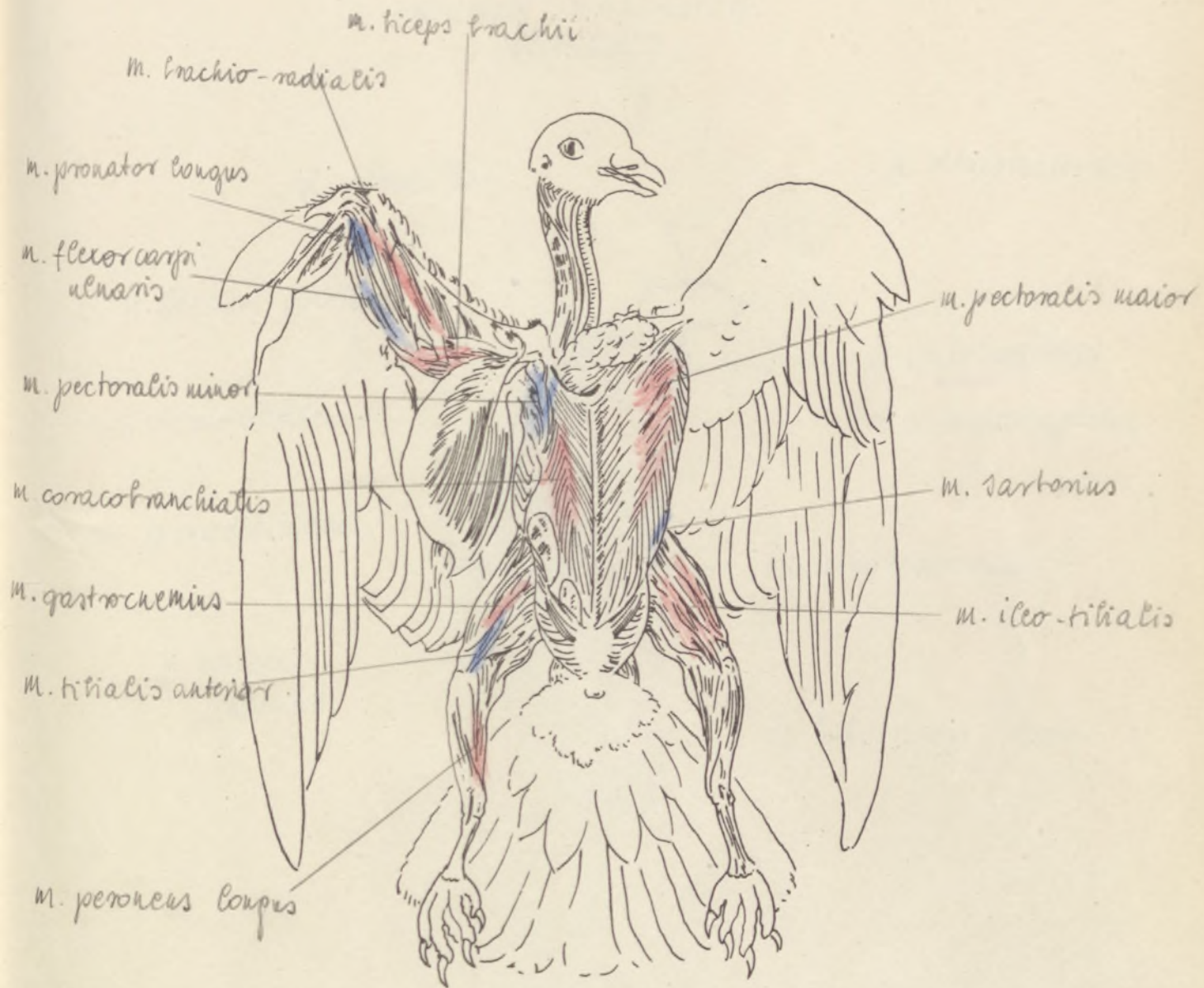
A MÁRKA IZOMZATA (HÁTULRÖL)

-29-

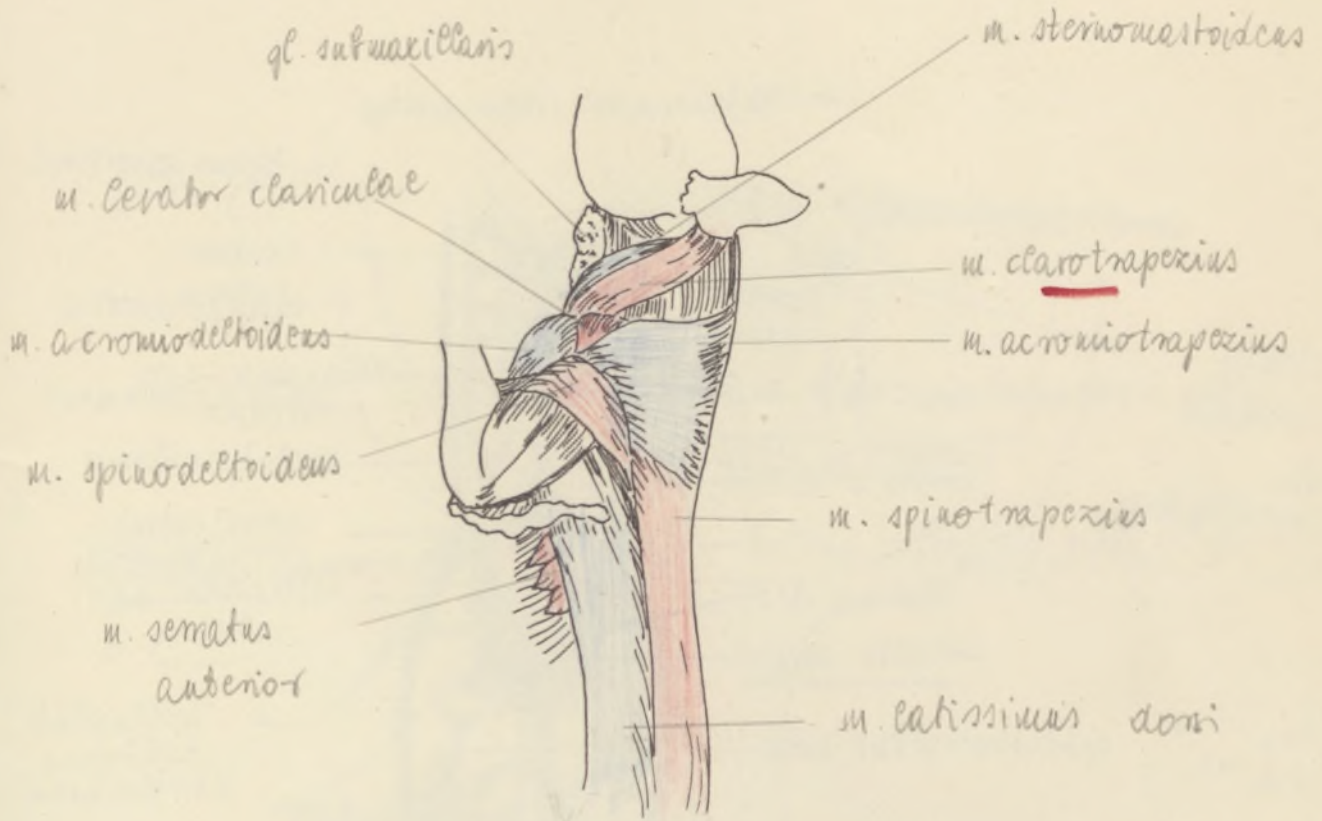


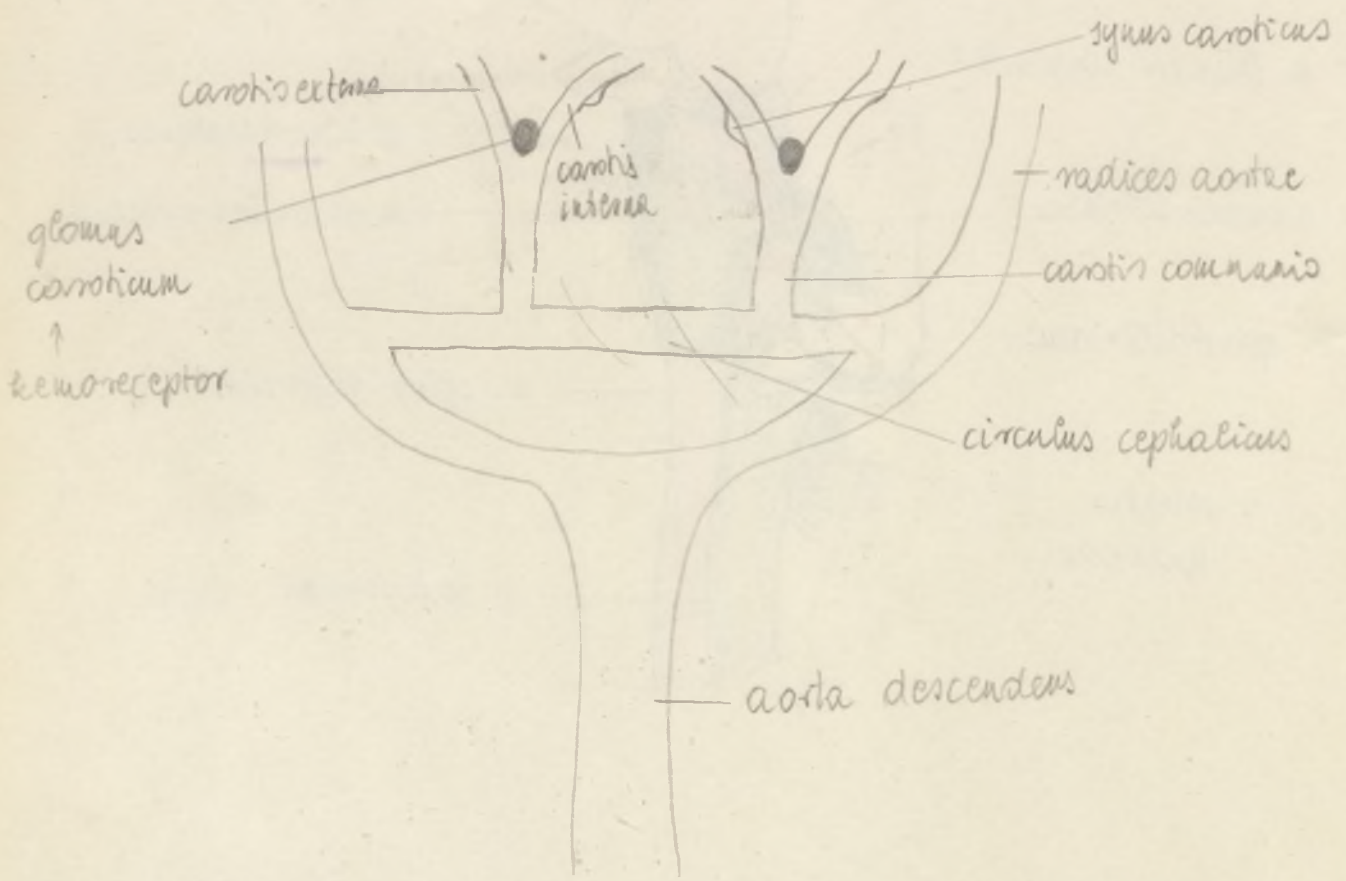
A MADAR IZOMZATA (ELŐLRŐL)

-30-



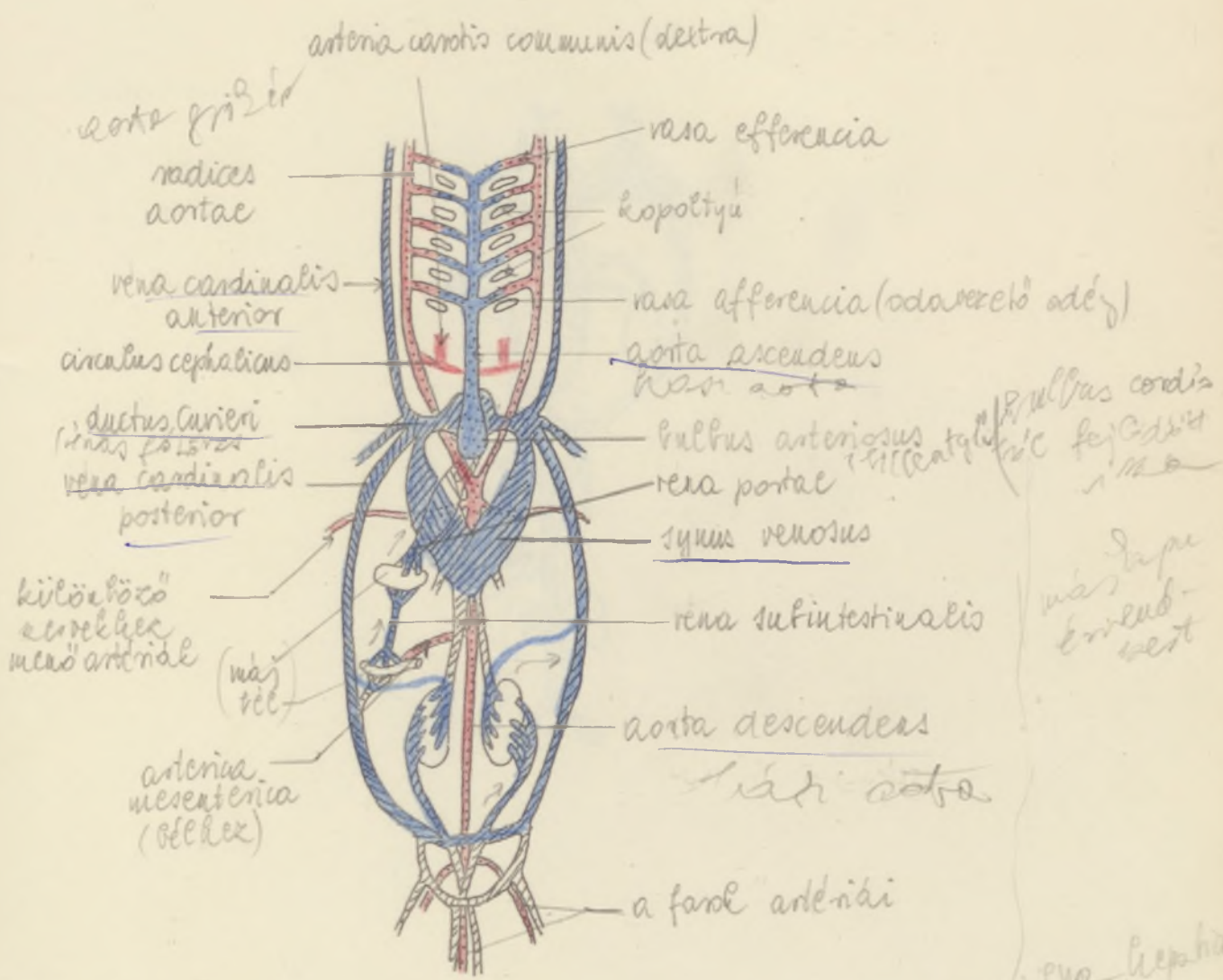
-31-
PATKÁNY IZOMKATA
(oldalról)





carotis interna
radice
aortae

A HAL VÉRKERINGÉSE

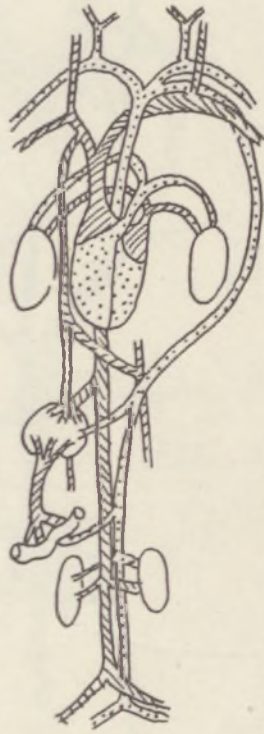


bulbus cordis
C. fejtél

vasa
Erek
test

vena hepatica
synus venosus
sub
karad

a. vena cardinalis
v. subintestinalis



A BÉKA SZÍVE

arteria
subclavia

aorta iv

(tónus)z

±

arteria carotis communis

arteria pulmocutanea

arteria cutanea magna

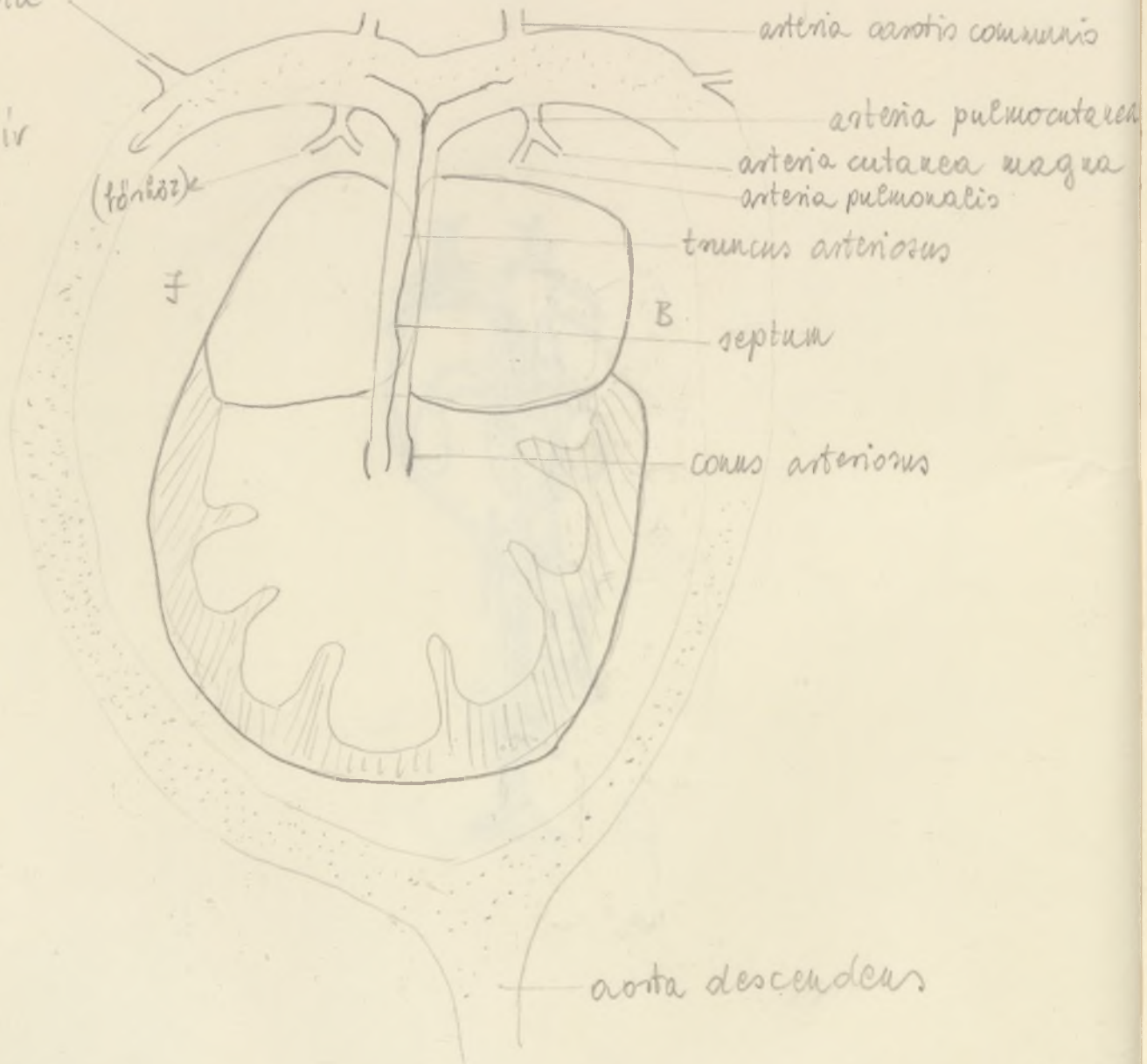
arteria pulmonalis

truncus arteriosus

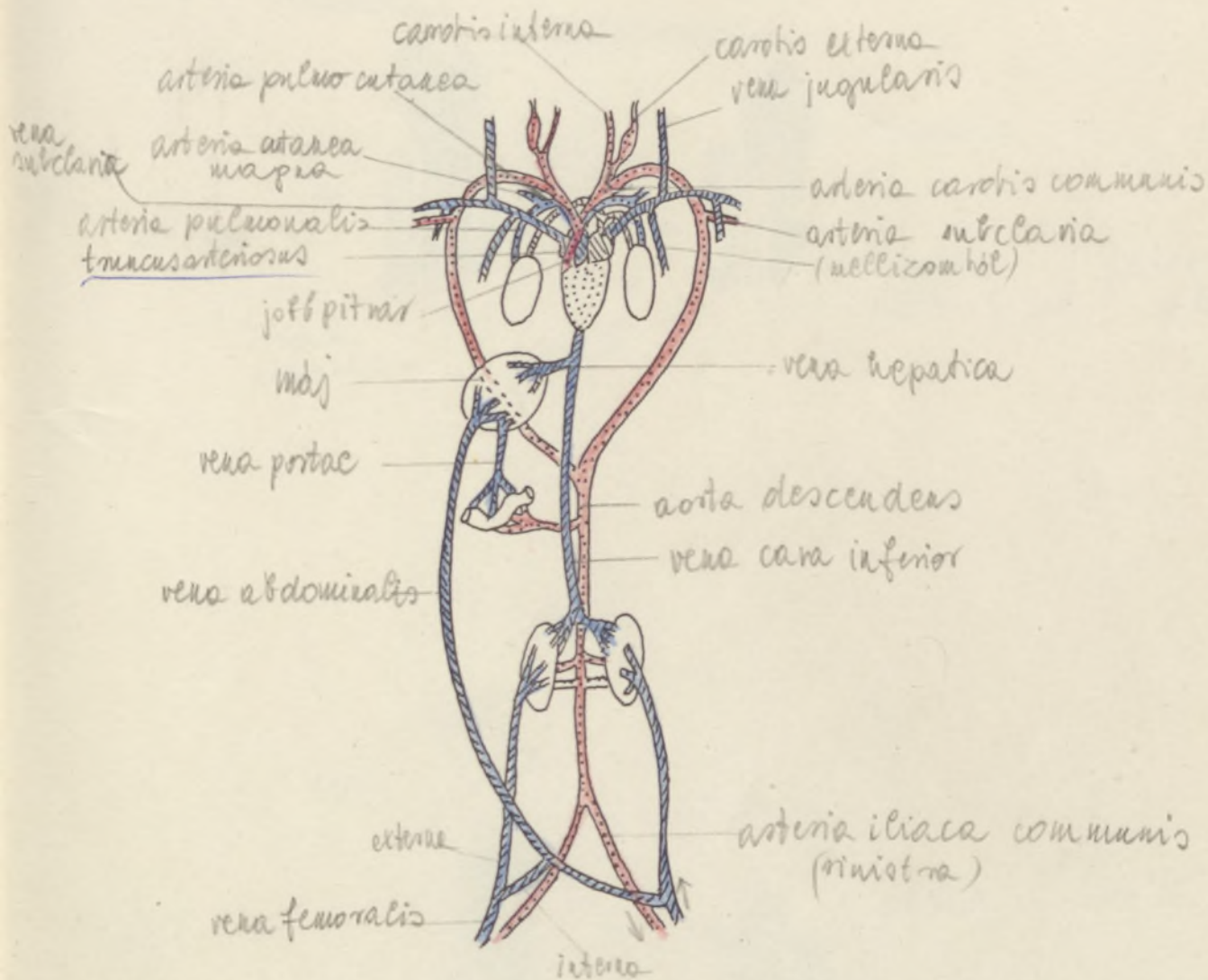
B
septum

conus arteriosus

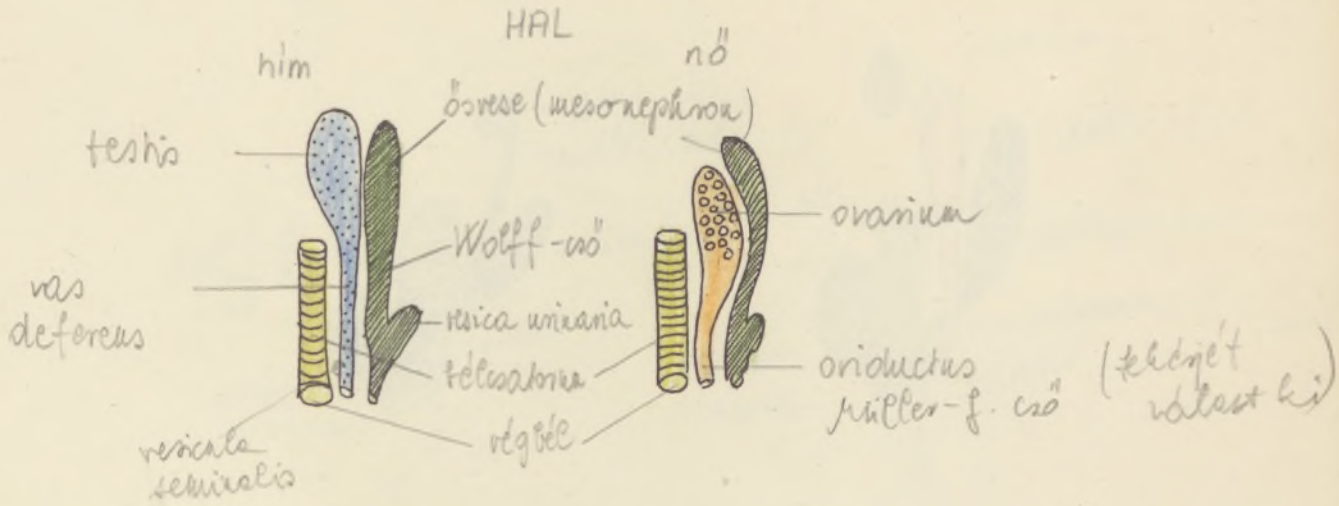
aorta descendens



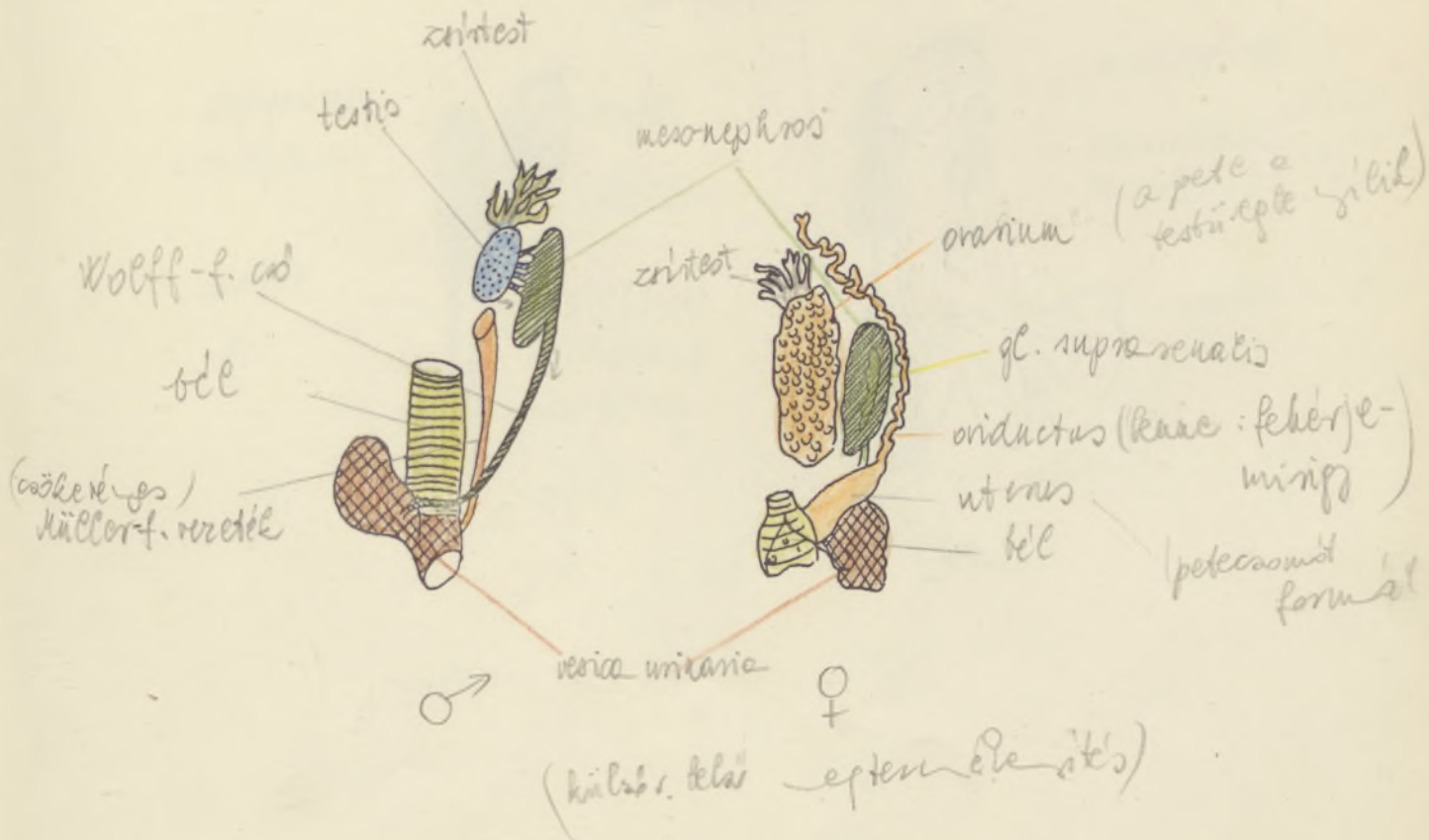
A. BÉKA VERKÉRINGÉSE



HUGYIVARZERVEK ALAKULÁSA:



BEKA

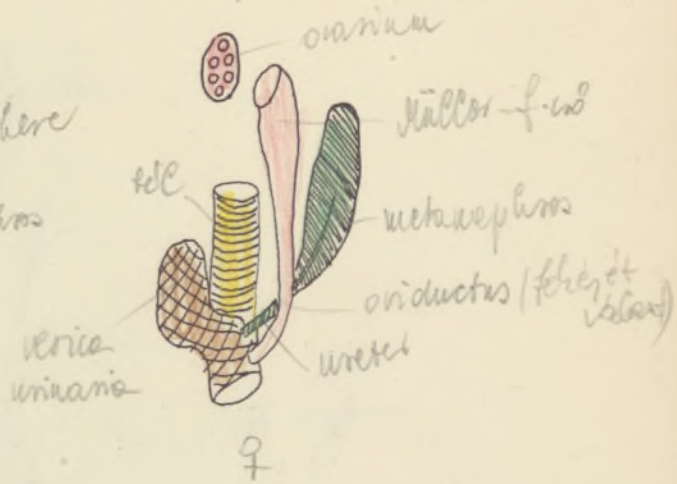


HÜLLŐK

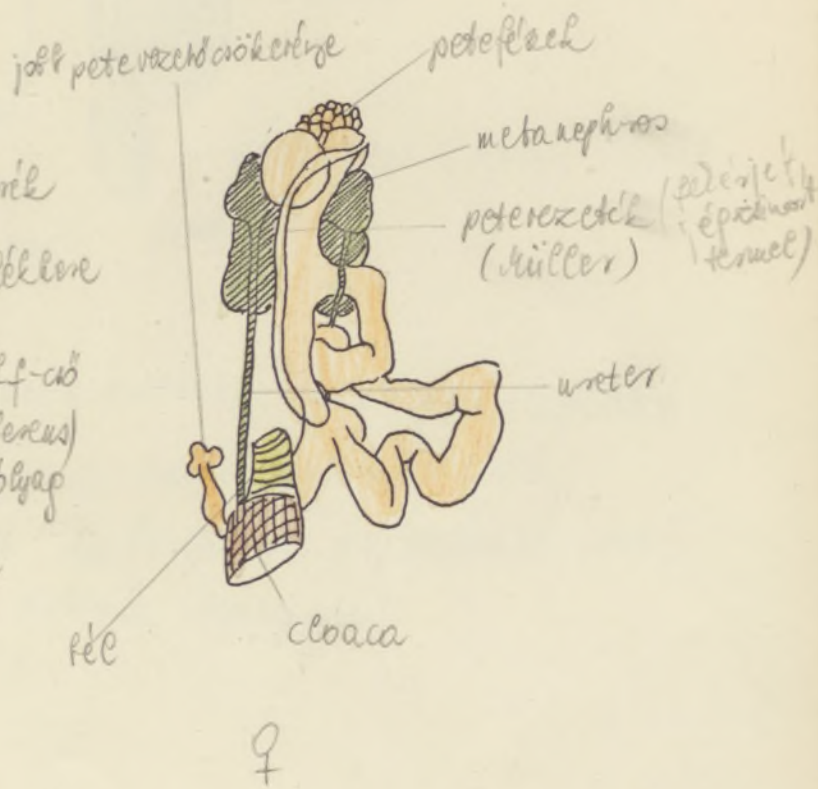
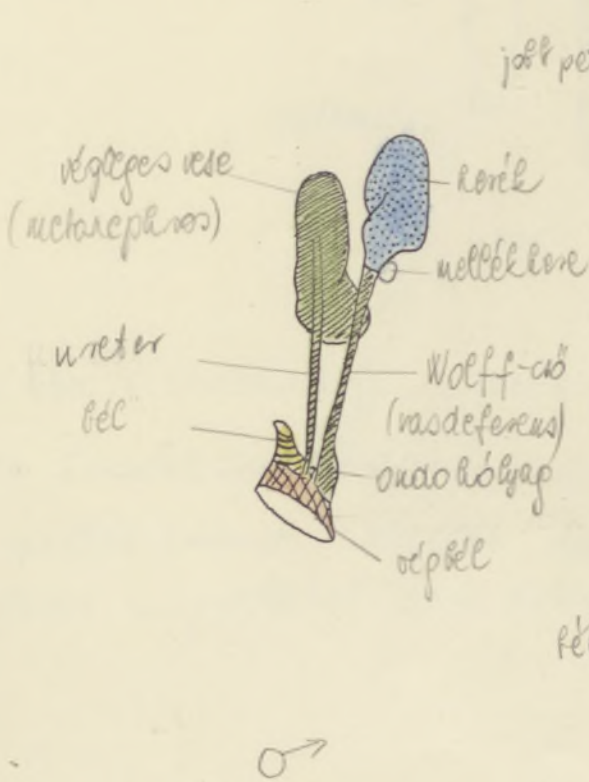
HÍM



NŐSTÉNY

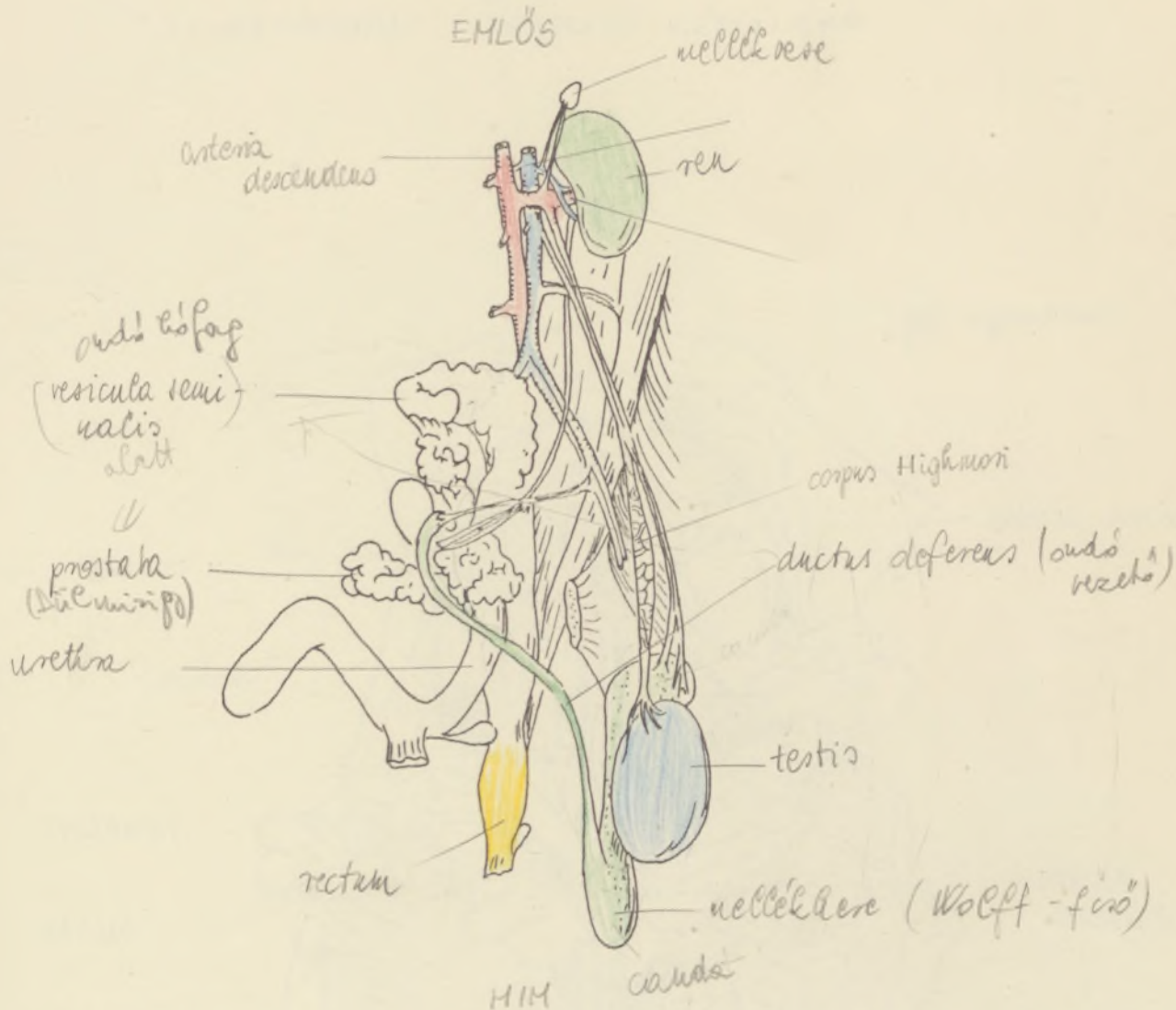


MADAR



FEMÉRPÁTKÁNY: SZAPORÍTÓ KÉSZÜLÉKE

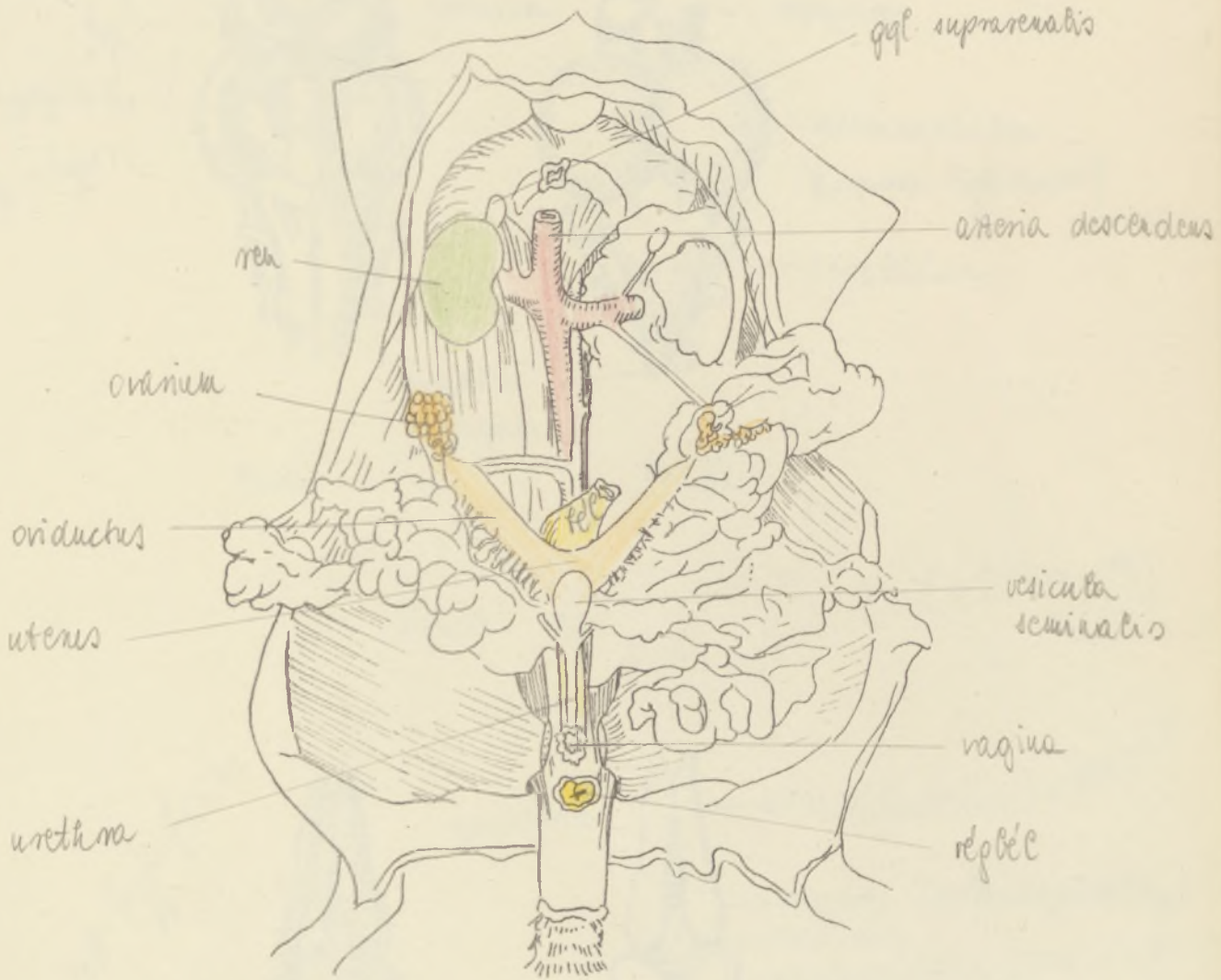
-37-



Páros here a kezacszkóla, ezek az utalók a corpus Highmori
 meser kesetül összekedődik és a mellékvesébe kerül.

A mellékvese a ductus deferensben folytatódik, meg
 felezi a prostatát és a vesicula seminalist.

FEHÉRPATKÁNY : SZAPORÍTÓ KÉSZÜLÉKE



nőstény

HAL AGY

(fejlett agyvelő)

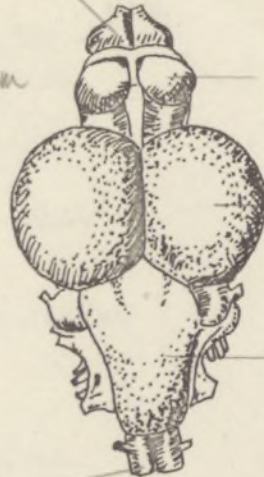
chiasma
nervorum
opticorum

lobus olfactorius

corpus
stratum

nagyagy

hypophysis
epiphysis



mesencephalon
(corpus bipennium)

cerebellum

medulla
oblongata

ALUL

FELÜL

BÉKA AGY

fejletlen agy

fejlett hypophysis

epiphysis

lobus olfactorius (fejlesztett)



nagyagy (telencephalon)

köztagy

mesencephalon (corp. bipennium)

kisaagy (cerebellum)

nyúltagy (medulla oblongata)

HÜLLÖ AGY

-40-

Chiasma
nerv. opt.
hypophysis



lobus olfactorius



cerebrum
epiphysis
nerv. opt.
cerebellum

Chiasma
cortex
cerebri

medulla
oblongata
(Feylett)

Feylett
commissura

MADÁR AGY

proctalis nerv (residua
basalit)

lobus olfactorius (zsepe)

Chiasma
nervorum
opticum

cerebrum



hypothalamus

infundibular



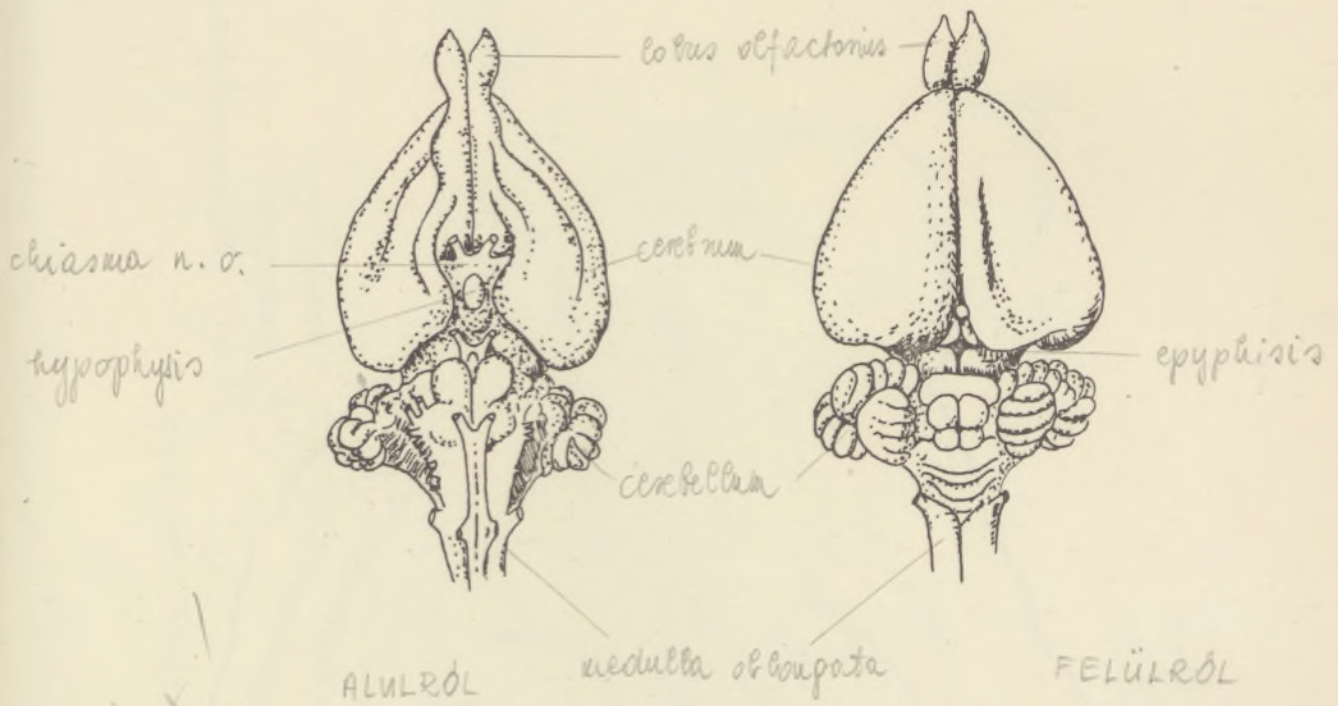
mesencephalon (4db)

lobus opticus
cerebellum (Feylett)

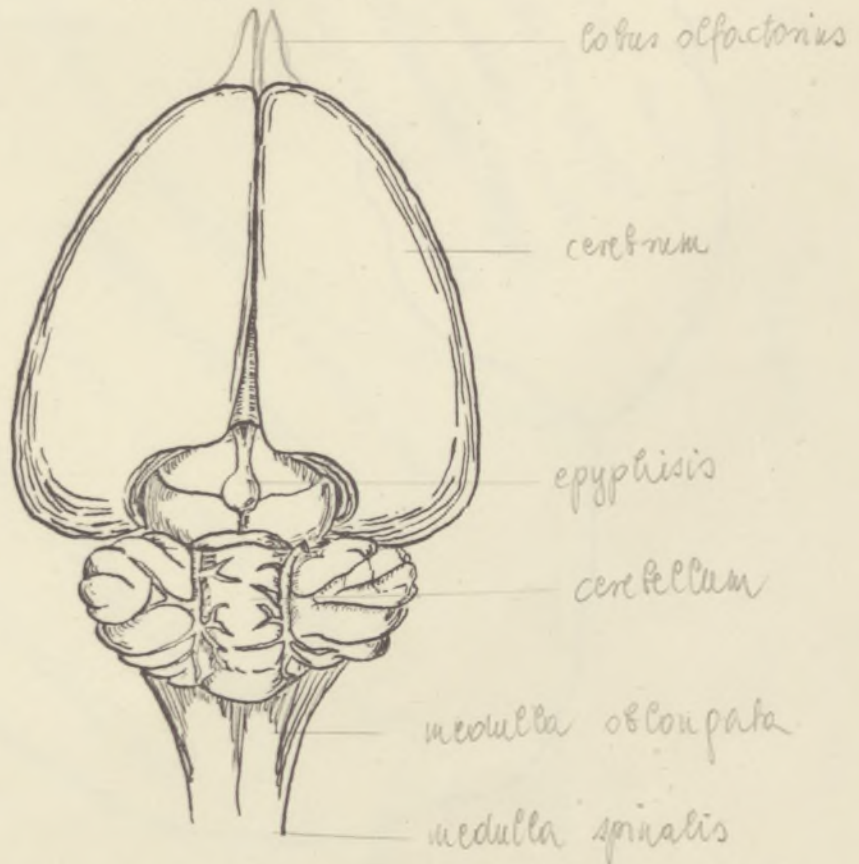
medulla oblongata

verruis

LEPUS



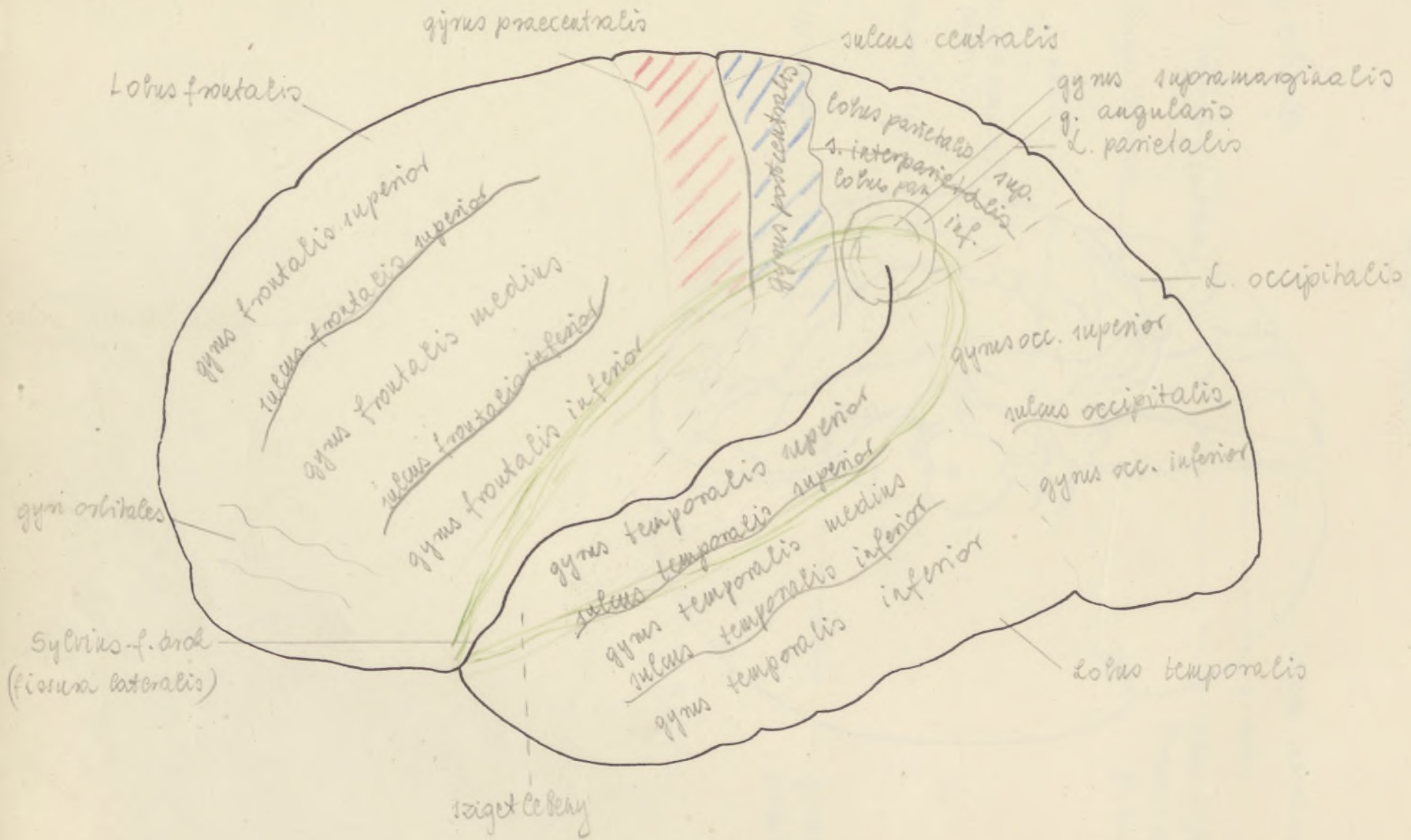
RATTUS RATTUS



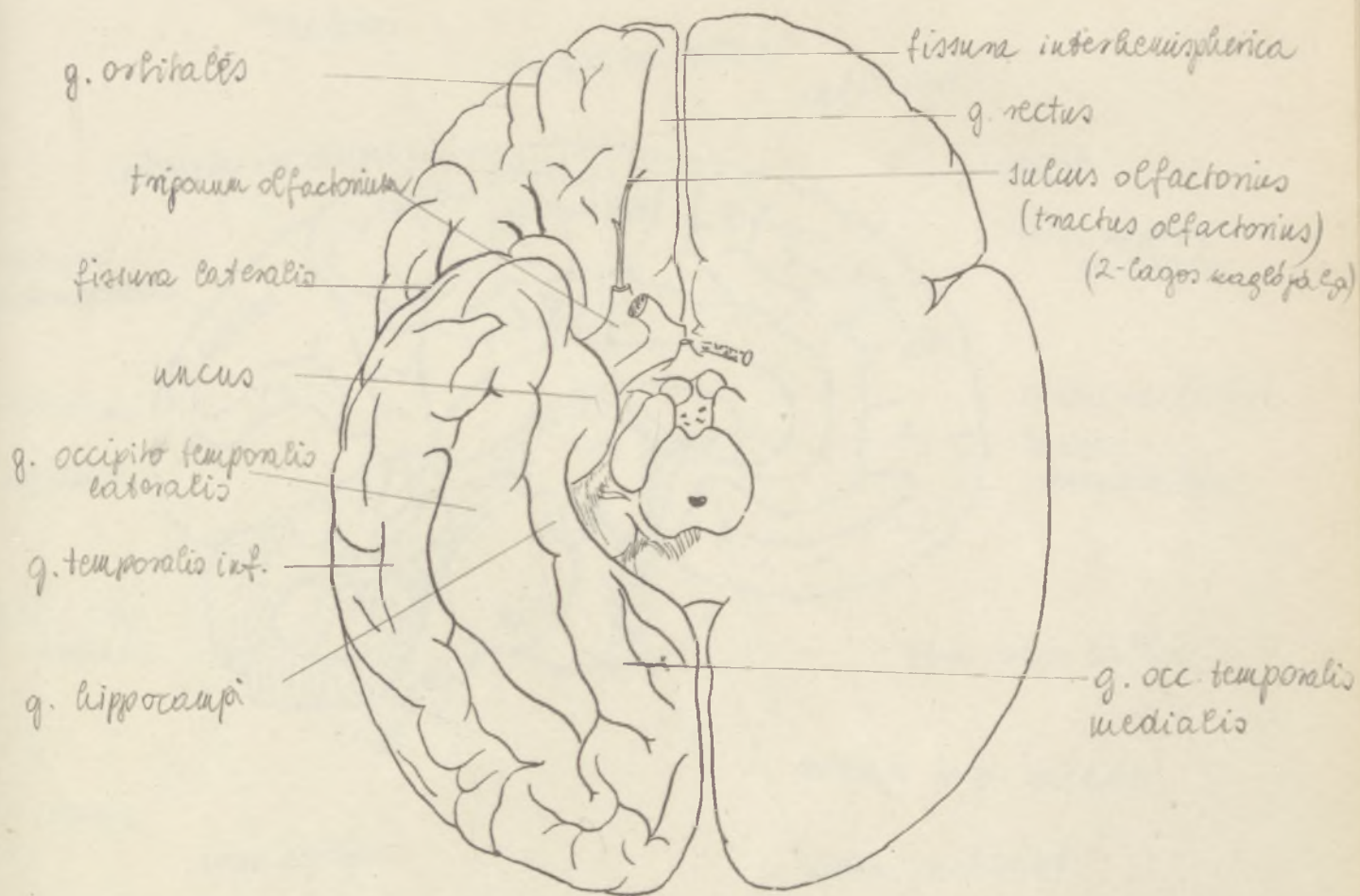
FELÜLRÖL

Cortex!
 gyri
 (indicated by lines pointing to the cerebral cortex in the drawings)

FACIES CONVEXA

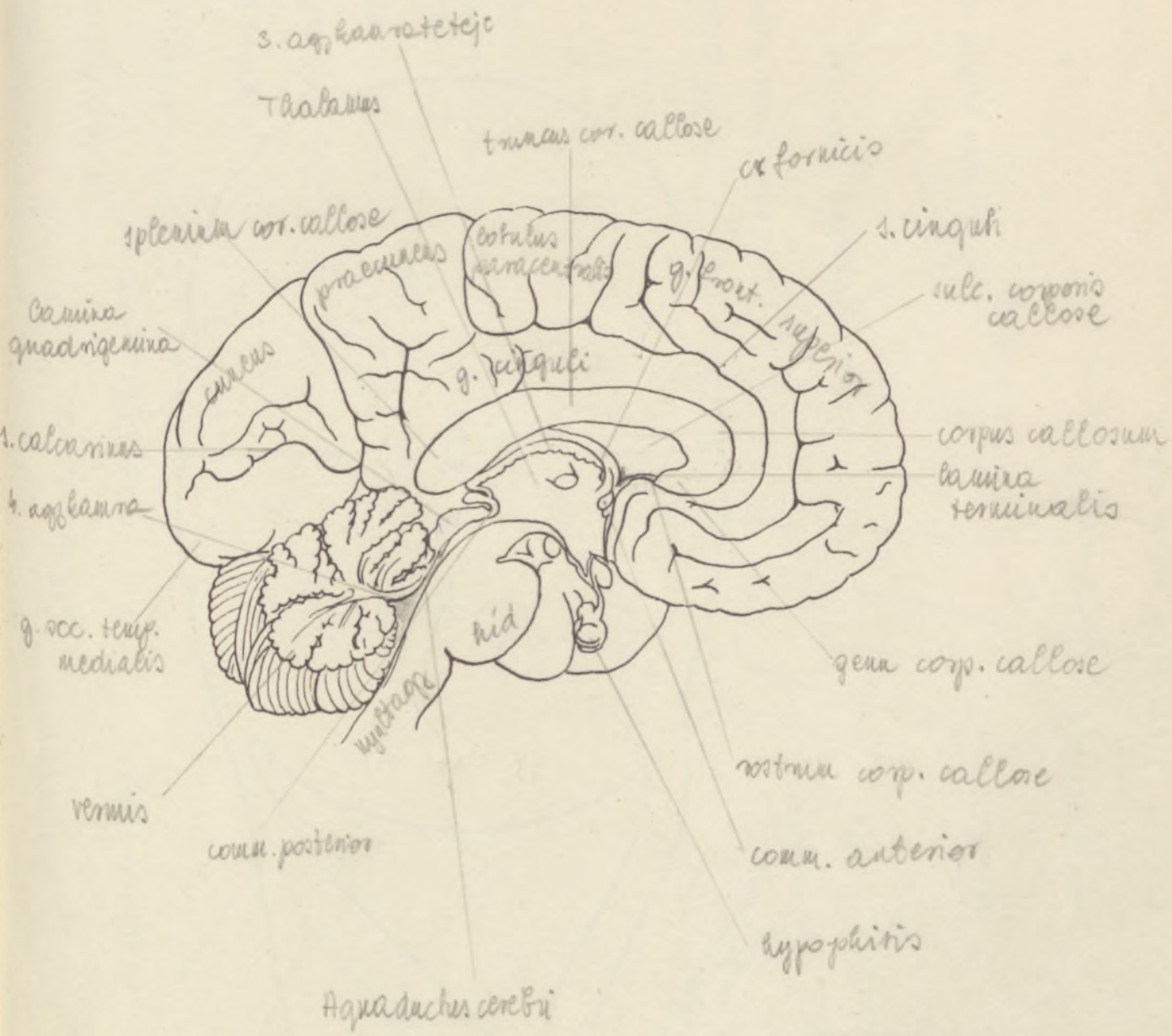


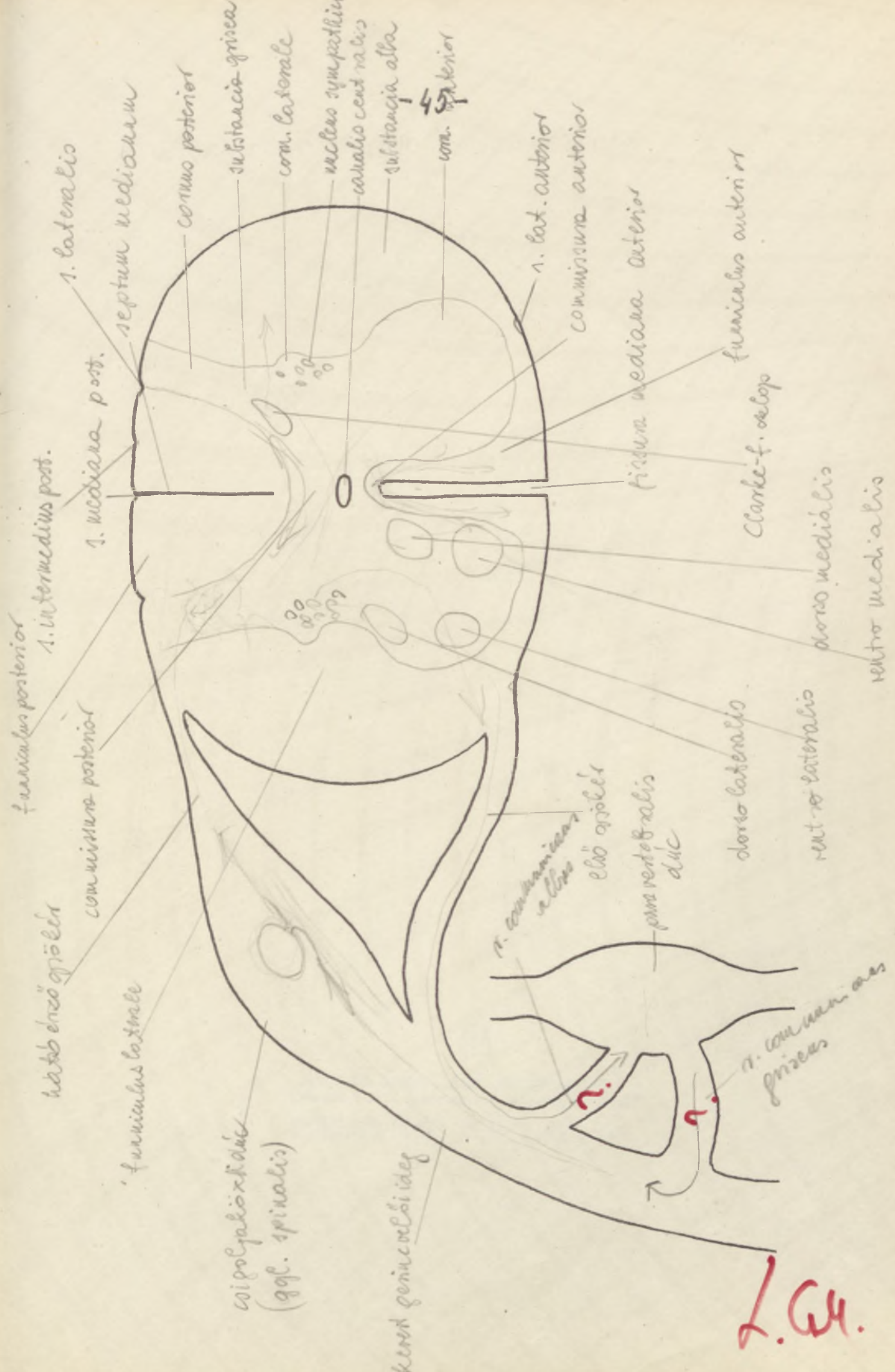
FACIES BASALIS



FACES MEDIALIS

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L. G. H.

KERESZTMETSZETE

A GERINCVELŐ



F.k. : Dr. Serföző Lajos rektorhelgettes
Készült a JATE sokszorosító műhelyében, Szeged
Engedélyszám : 37/73. - Méret : A/ 4
Példányszám : 250 . - P.v. : Lengyel Gábor.