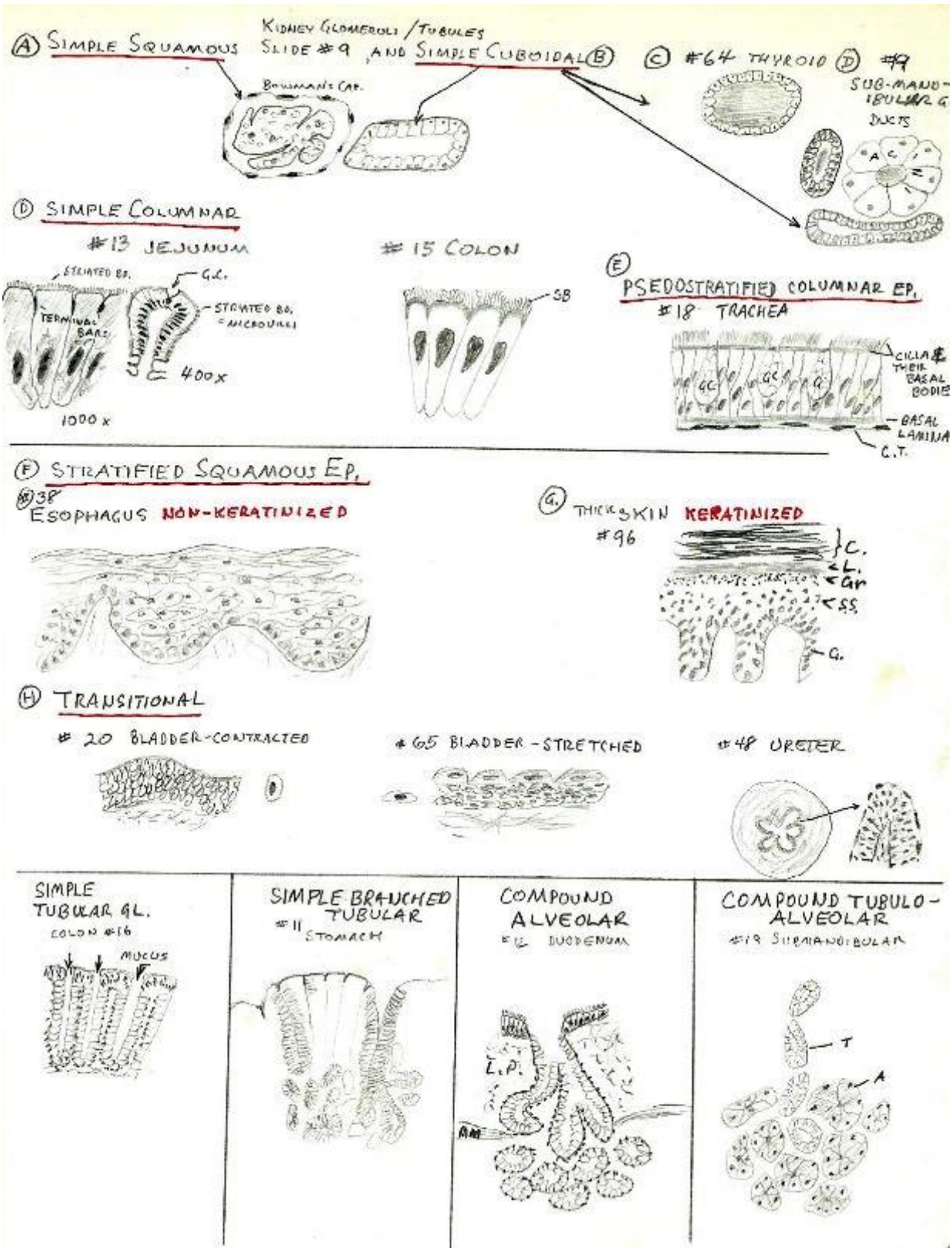
Illustrations of Histology Slides Drawn at the UMDNJ-NJ Medical School during the Fall, 1984 Human Gross, Microscopic Anatomy & Embryology Class by John E. B. Baker

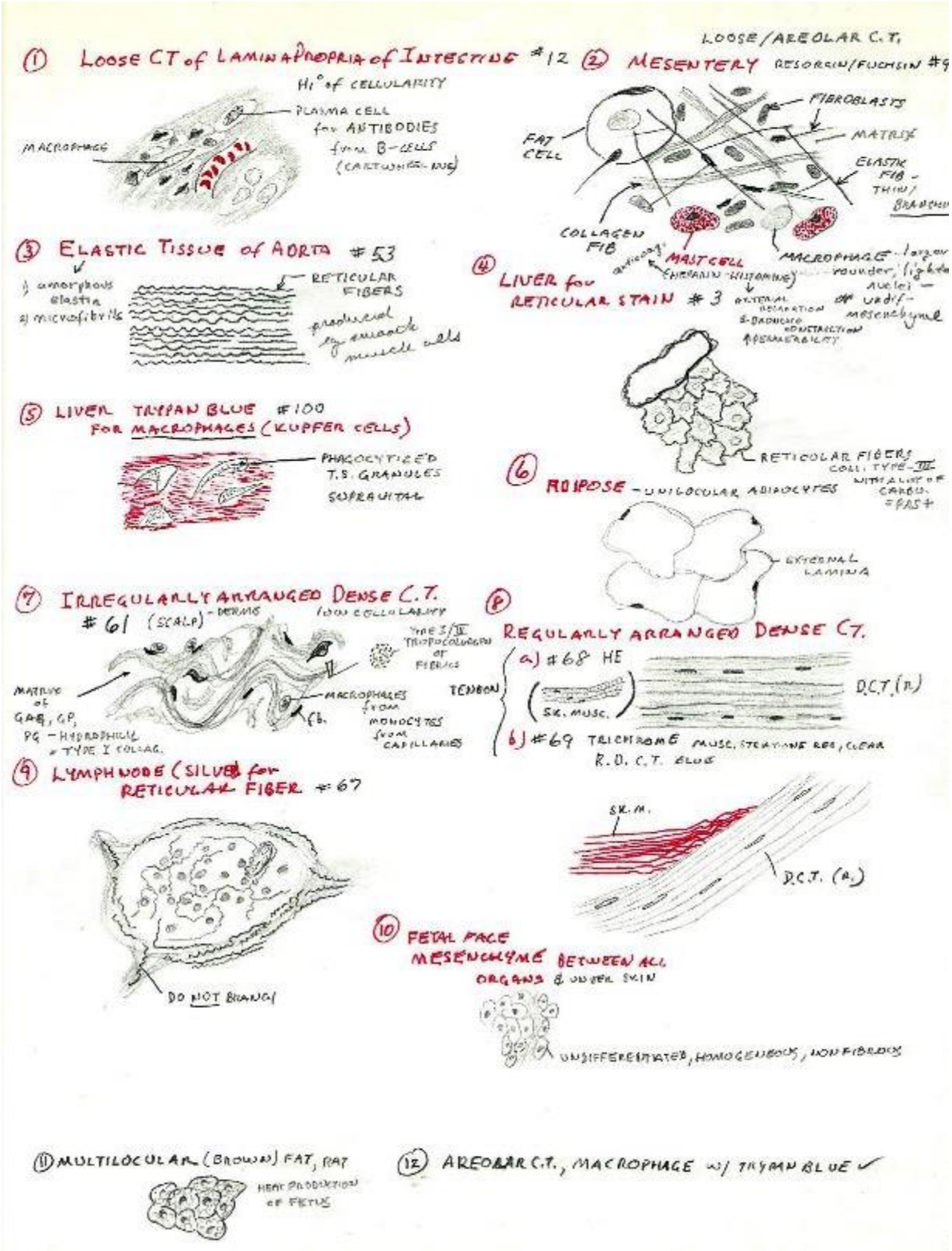
UMDNJ-NEW JERSEY MEDICAL SCHOOL
DEPARTMENT OF ANATOMY
MICROANATOMY SLIDE LIST
1984-1985

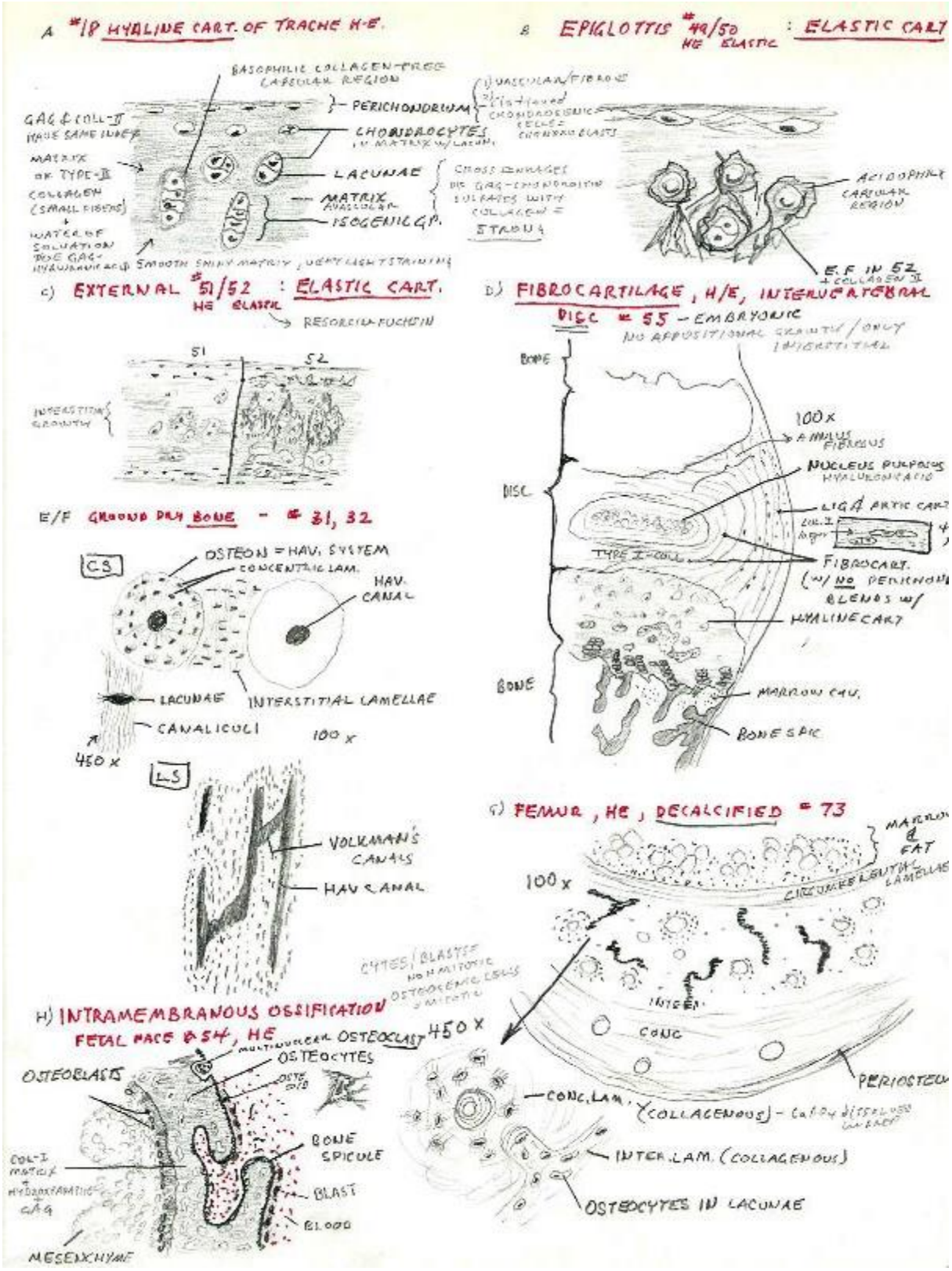
SLIDE #	TISSUE/ORGAN AND SOURCE	STAIN
1	Liver, dog	Hematoxylin & Eosin
2	Liver, rat	Periodic Acid-Schiff & Hematoxylin
3	Liver, human	Reticular (Gomori)
4	Pancreas, dog	Hematoxylin & Eosin
5	Ovary, human	Hematoxylin & Eosin
6	Mitosis, whitefish blastula	Hematoxylin & Eosin
7	Testis, Epididymis, human	Hematoxylin & Eosin
8	Chromosome Preparation, human	Geimsa
9	Kidney, human	Hematoxylin & Eosin
10	Stomach, Fundus, dog	Hematoxylin & Eosin
11	Stomach, Pylorus, monkey	Hematoxylin & Eosin
12	Small Intestine, Duodenum, monkey	Hematoxylin & Eosin
13	Small Intestine, Jejunum, monkey	Hematoxylin & Eosin
14	Small Intestine, Ileum, dog	Hematoxylin & Eosin
15	Large Intestine, L.S., monkey	Hematoxylin & Eosin
16	Large Intestine, X.S., monkey	Hematoxylin & Eosin
17	Larynx, human	Hematoxylin & Eosin
18	Trachea, monkey	Hematoxylin & Eosin
19	Submandibular gland, monkey	Hematoxylin & Eosin
20	Urinary Bladder, monkey	Hematoxylin & Eosin
21	Adipose tissue, human	Hematoxylin & Eosin
22	Eye, dog	Hematoxylin & Eosin
23	Skeletal Muscle, L.S., human	Hematoxylin & Eosin
24	Skeletal Muscle, X.S., human	Hematoxylin & Eosin
25	Cervix, human	Hematoxylin & Eosin
26	Spleen, human	Hematoxylin & Eosin
27	Appendix, human	Hematoxylin & Eosin
28	Internal Ear, guinea pig	Hematoxylin & Eosin
29	Uterus, human	Hematoxylin & Eosin
30	Sympathetic Ganglion, human	Hematoxylin & Eosin
31	Ground Bone, L.S., human	Dry Mount
32	Ground Bone, X.S., human	Dry Mount
33	Bone Marrow smear, human	Geimsa
34	Peripheral Blood smear, human	Wright
35	Adrenal gland, human	Hematoxylin & Eosin
36	Mammary gland, resting, human	Hematoxylin & Eosin
37	Oviduct, Isthmus, human	Hematoxylin & Eosin
38	Esophagus, human	Hematoxylin & Eosin
39	Oviduct, Ampulla, human	Hematoxylin & Eosin
40	Cardiac Muscle, human	Hematoxylin & Eosin
41	Lip, monkey	Hematoxylin & Eosin
42	Dorsal Root Ganglion, human	Hematoxylin & Eosin
43	Pituitary, human	Hematoxylin & Eosin
44	Placenta, full term, human	Hematoxylin & Eosin
45	Skin, thin, human	Hematoxylin & Eosin
46	Tongue, monkey	Hematoxylin & Eosin
47	Umbilical Cord, human	Hematoxylin & Eosin
48	Ureter, monkey	Hematoxylin & Eosin
49	Epiglottis, human	Hematoxylin & Eosin
50	Epiglottis, human	Elastic (Verhoeff)

MICROANATOMY SLIDE LIST

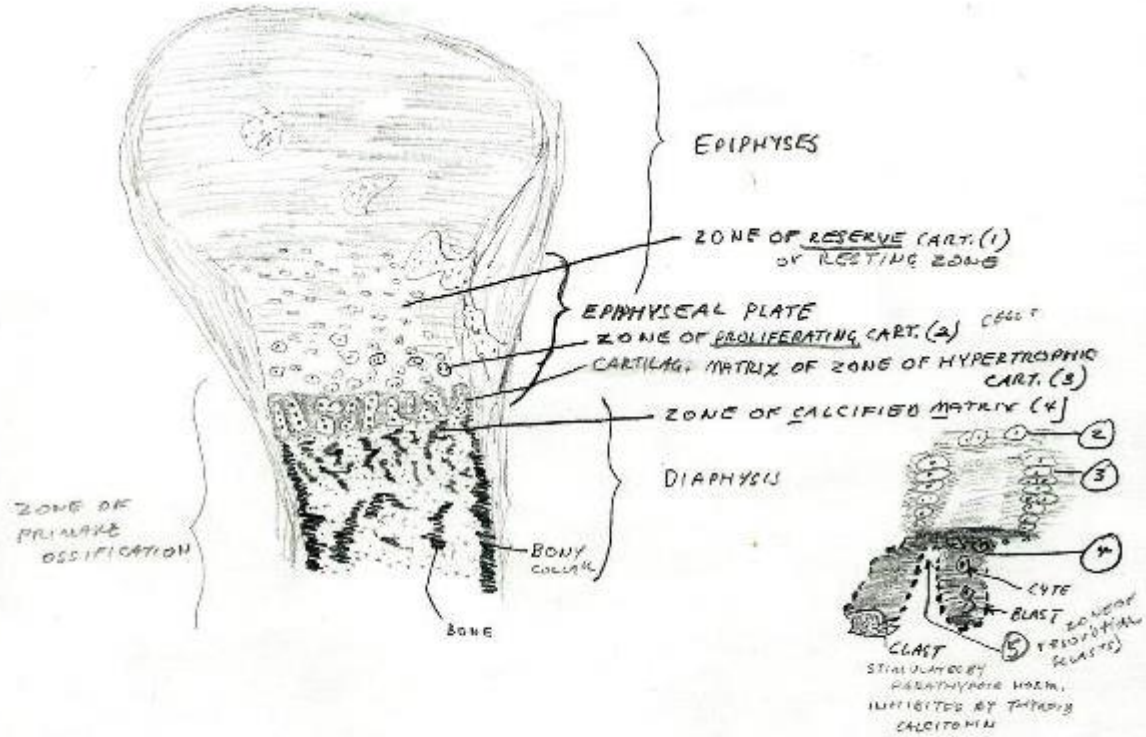
SLIDE #	TISSUE/ORGAN AND SOURCE	STAIN
51	External Ear, human	Hematoxylin & Eosin
52	External Ear, human	Elastic (Verhoeff)
53	Aorta, human	Elastic (Verhoeff)
54	Fetal Face, human	Hematoxylin & Eosin
55	Intervertebral Disc, monkey or cat	Hematoxylin & Eosin
56	Peripheral Nerve, L.S., human	Hematoxylin & Eosin
57	Peripheral Nerve, X.S., human	Trichrome (Gomori)
58	Thymus, adult, human	Hematoxylin & Eosin
59	Thin Skin, pigmented, human	Hematoxylin & Eosin
60	Fetal Joint, human	Hematoxylin & Eosin
61	Scalp, human	Hematoxylin & Eosin
62	Artery, Muscular, cat	Hematoxylin & Eosin
63	Gall Bladder, cat	Hematoxylin & Eosin
64	Thyroid, human	Hematoxylin & Eosin
65	Stretched Bladder, kitten	Hematoxylin & Eosin
66	Lymph Node, human	Hematoxylin & Eosin
67	Lymph Node, human	Reticular (Gomori)
68	Muscle & Tendon, human	Hematoxylin & Eosin
69	Muscle & Tendon, human	Trichrome (Gomori)
70	Kidney, dog	Periodic Acid-Schiff and Hematoxylin
71	Parathyroid, human	Hematoxylin & Eosin
72	Prostate, human	Hematoxylin & Eosin
73	Femur, X.S., rabbit	Hematoxylin & Eosin
74	Artery, Vein, & Nerve, human	Hematoxylin & Eosin
75	Sperm smear, human	Papanicolau
76	Aorta, human	Hematoxylin & Eosin
77	Corpus Luteum, dog	Hematoxylin & Eosin
78	Liver, rat	Perfused with Carmine Gelatin stained with Hematoxylin
79	Lung, Inflated, rat	Hematoxylin & Eosin
80	Tongue, rat	Perfused with Carmine Gelatin stained with Hematoxylin
81	Thymus, child, human	Hematoxylin & Eosin
82	Bronchus, dog	Hematoxylin & Eosin
83	Buccal Smear, human	Cresyl Echt Violet
84	Liver, rat	Feulgen (DNA)
85	Vagina, human	Hematoxylin & Eosin
86	Spinal Cord, dog	Hematoxylin & Eosin
87	Spinal Cord, dog	Luxol Blue & Cresyl Violet
88	Parotid gland, monkey	Hematoxylin & Eosin
89	Seminal Vesicle, human	Hematoxylin & Eosin
90	Mammary gland, first trimester, monkey	Hematoxylin & Eosin
91	Mammary gland, lactating, monkey	Hematoxylin & Eosin
92	Tonsil, Lingual, dog	Hematoxylin & Eosin
93	Tonsil, Palatine, dog	Hematoxylin & Eosin
94	Areolar Connective Tissue	Elastic (Resorcin Fuchsin) and Hematoxylin & Eosin
95	Sublingual gland, monkey	Hematoxylin & Eosin
96	Skin, Thick, fingertip, human	Hematoxylin & Eosin
97	Eyelid, human	Hematoxylin & Eosin
98	Coronary Artery, human	Hematoxylin & Eosin
99	Bronchial Lymph Node, human	Hematoxylin & Eosin
100	Liver, rat	Intravital Trypan Blue stained with Eosin


A SIMPLE SQUAMOUS
KIDNEY GLOMERULI / TUBULES
SLIDE #9
AND SIMPLE CUBOIDAL B
C #64 THYROID
D #9
SUB-MANDIBULAR G
DUCTS
BOWMAN'S CAP.
D SIMPLE COLUMNAR
#13 JEJUNUM
STRIATED BD.
G.C.
TERMINAL BARS
STRIATED BD. = MICROVILLI
400x
1000 x
#15 COLON
SB
E PSEDOSTRATIFIED COLUMNAR EP.
#18 TRACHEA
CILIA & THEIR BASAL BODIES
BASAL LAMINA
C.T.
F STRATIFIED SQUAMOUS EP.
#38
ESOPHAGUS NON-KERATINIZED
G. THICK SKIN KERATINIZED
#96
C.
L.
Gr
SS
G.
H TRANSITIONAL
#20 BLADDER-CONTRACTED
#65 BLADDER-STRETCHED
#48 URETER
SIMPLE TUBULAR GL.
COLON #16
MUCUS
SIMPLE BRANCHED TUBULAR
#11 STOMACH
COMPOUND ALVEOLAR
#12 DUODENUM
L.P.
M.M.
COMPOUND TUBULO-ALVEOLAR
#19 SUBMANDIBULAR
T
A

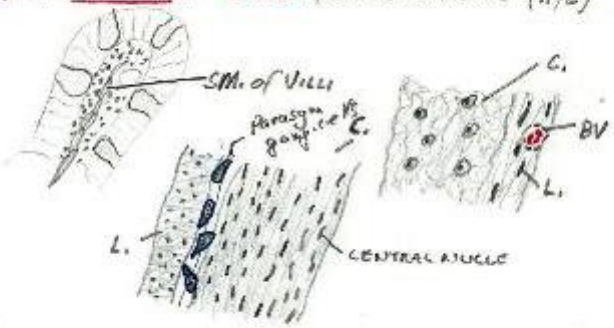

LOOSE/AREOLAR C.T.
(1) LOOSE CT of LAMINA PROPRIA of INTESTINE #12
Hi° of CELLULARITY
PLASMA CELL for ANTIBODIES from B-CELLS
MACROPHAGE
(2) MESENTERY RESORCIN/FUCHSIN #9
FIBROBLASTS
MATRIX
FAT CELL
ELASTIC FIB - THIN/
COLLAGEN FIB
MAST CELL
MACROPHAGE
(3) ELASTIC TISSUE of AORTA #53
1) amorphous elastin
2) microfibrils
RETICULAR FIBERS
produced by smooth muscle cells
(4) LIVER for RETICULAR STAIN #3
(5) LIVER TRYPAN BLUE #100
FOR MACROPHAGES (KUPFER CELLS)
PHAGOCYTIZED T.S. GRANULES
SUPRAHEPATIC
RETICULAR FIBERS
(6) ADIPOSE - UNILOCULAR ADIPOCYTES
EXTERNAL LAMINA
(7) IRREGULARLY ARRANGED DENSE C.T.
#61 (SCALP) - DERMIS
MATRIX of GAG, GP, PG - HYDROPHILIC + TYPE I COLLAG.
MACROPHAGES from MONOCYTES from CAPILLARIES
(8) REGULARLY ARRANGED DENSE C.T.
TENDON
a) #68 HE
SK. MUSC.
D.C.T. (R.)
b) #69 TRICHROME
R.D.C.T. BLUE
(9) LYMPH NODE (SILVER for RETICULAR FIBER #67
DO NOT BRANCH
SK. M.
D.C.T. (R.)
(10) FETAL FACE MESENCHYME BETWEEN ALL ORGANS & UNDER SKIN
UNDIFFERENTIATED, HOMOGENEOUS, NON FIBROUS
(11) MULTILOCULAR (BROWN) FAT, RAT
HEAT PRODUCTION of FETUS
(12) AREOLAR C.T., MACROPHAGE w/ TRYPAN BLUE ✓


A #18 HYALINE CART. OF TRACHE H-E.
B EPIGLOTTIS #49/50 HE ELASTIC : ELASTIC CART
BASOPHILIC COLLAGEN-FREE CAPSULAR REGION
PERICHONDRIUM
CHONDROCYTES
LACUNAE
MATRIX
ISOGENIC GP.
ACIDOPHILIC CAPSULAR REGION
E.F IN 52
C) EXTERNAL #51/52 : ELASTIC CART.
HE ELASTIC
RESORCIN-FUCHSIN
51
52
INTERSTITIAL GROWTH
D) FIBROCARTILAGE, H/E, INTERVERTEBRAL DISC = 55 - EMBRYONIC
NO APPOSITIONAL GROWTH / ONLY INTERSTITIAL
BONE
DISC
100 X
ANNULUS FIBROSUS
NUCLEUS PULPOSUS
HYALURONIC ACID
LIG A ARTIC CART
FIBROCART.
HYALINE CART
BONE
MARROW CAV.
BONE SPIC
E/F GROUND PLN BONE - = 31, 32
CS
OSTEON = HAV. SYSTEM
CONCENTRIC LAM.
HAV. CANAL
LACUNAE
INTERSTITIAL LAMELLAE
CANALICULI
100 X
450 X
LS
VOLKMANN'S CANALS
HAV CANAL
G) FEMUR, HE, DECALCIFIED = 73
MARROW & FAT
100 X
CIRCUMFERENTIAL LAMELLAE
INTERST.
CONC
PERIOSTEUM
450 X
CONC. LAM. (COLLAGENOUS)
INTER. LAM. (COLLAGENOUS)
OSTEOCYTES IN LACUNAE
H) INTRAMEMBRANOUS OSSIFICATION
FETAL FACE #54, HE
MULTINUCLEAR OSTEOCLAST
OSTEOCYTES
OSTEOBLASTS
BONE SPICULE
BLAST
BLOOD
COL-I MATRIX
MESENCHYME

#60 FETAL JT., HE ENDOCHONDRAL OSSIFICATION



#13, 14 SMOOTH MUSCLE of small intestine (H/E)

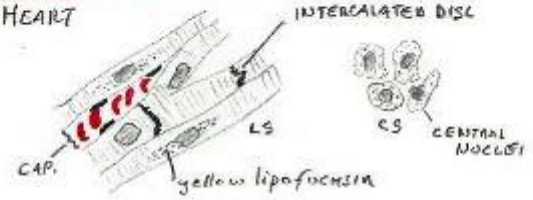


#46, 80 – TONGUE SKELETAL MUSCLE
H/E CARMINE GELATIN/HEMA.

#68, 69 MUSCLE/TENDON for SKELETAL MUSCLE

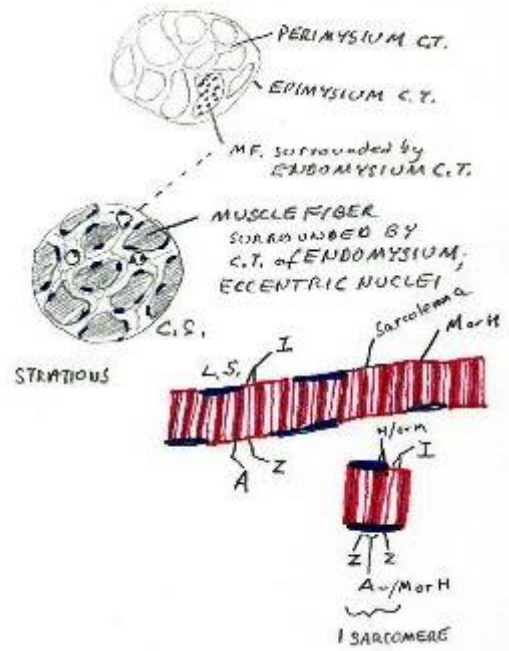
CARDIAC MUSCLE:

#40 HEART



#23, 24 - SKELETAL MUSCLE (H/E)

A, H, Z, I



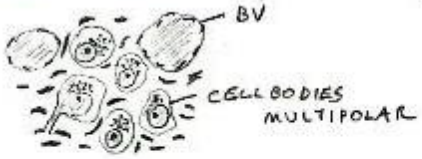
NERVE

SPINAL CORD, # 86, 87

SYMPATHETIC GANGLION # 30 – PERIPHERAL MOTOR – w/ C.B. OF POST SYNAPTIC NEURONS

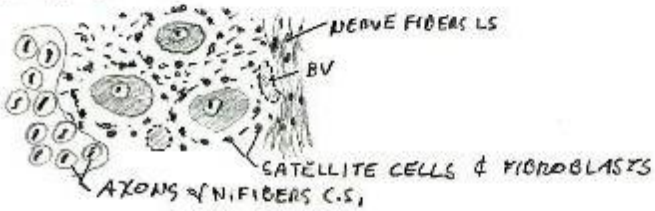
p. 90

for CONDUCTING IMPULSES TO CARD. M., SM. MUSC., glands

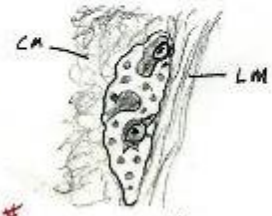


DORSAL ROOT GANGLION # 42 SENSORY – UNIPOLAR

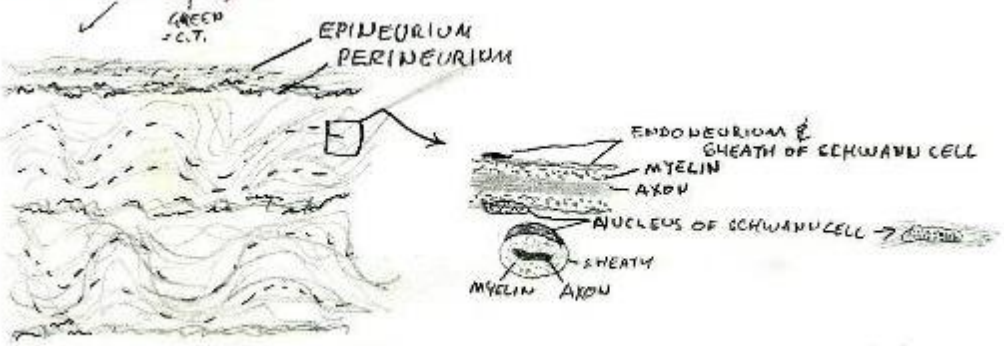
p. 96

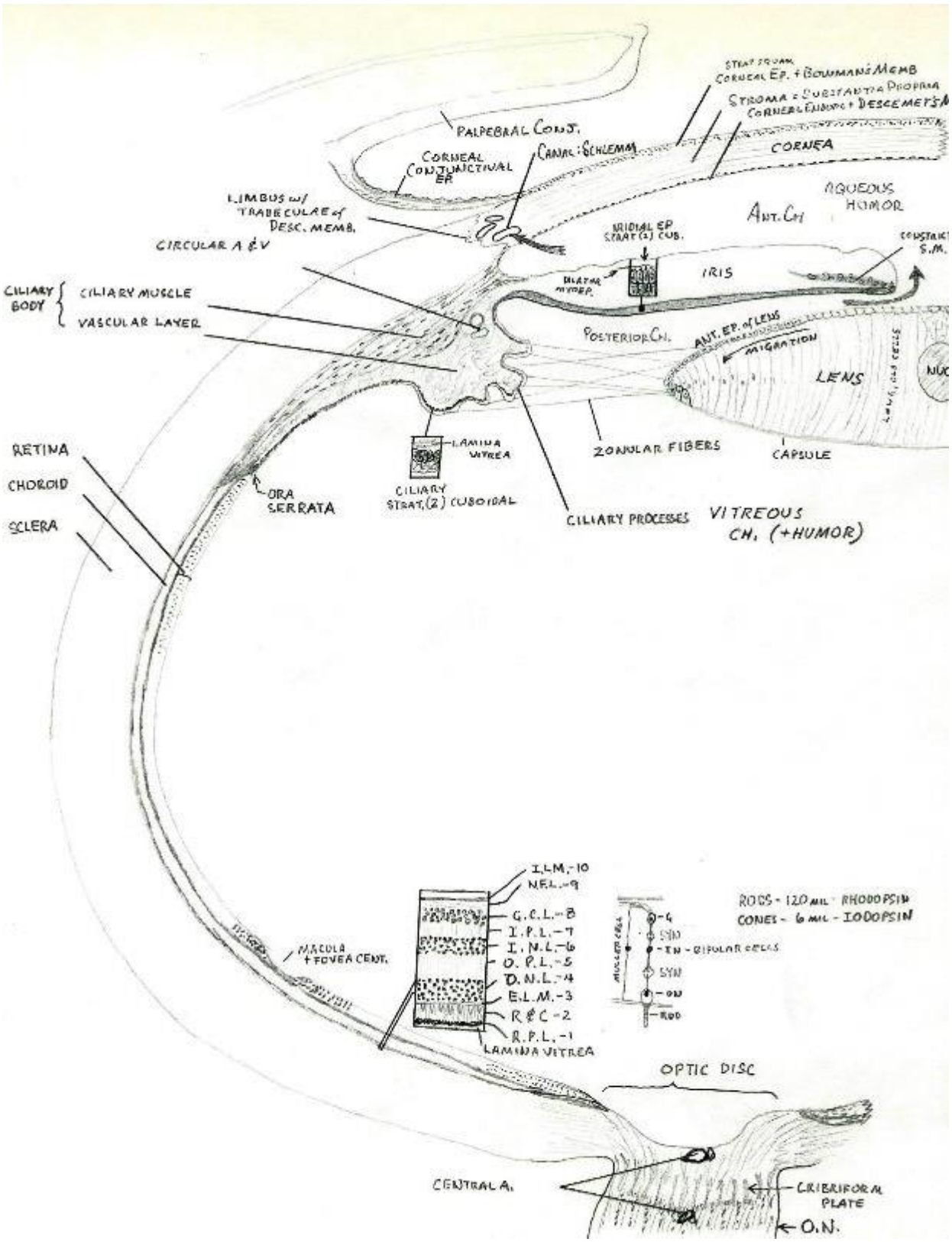


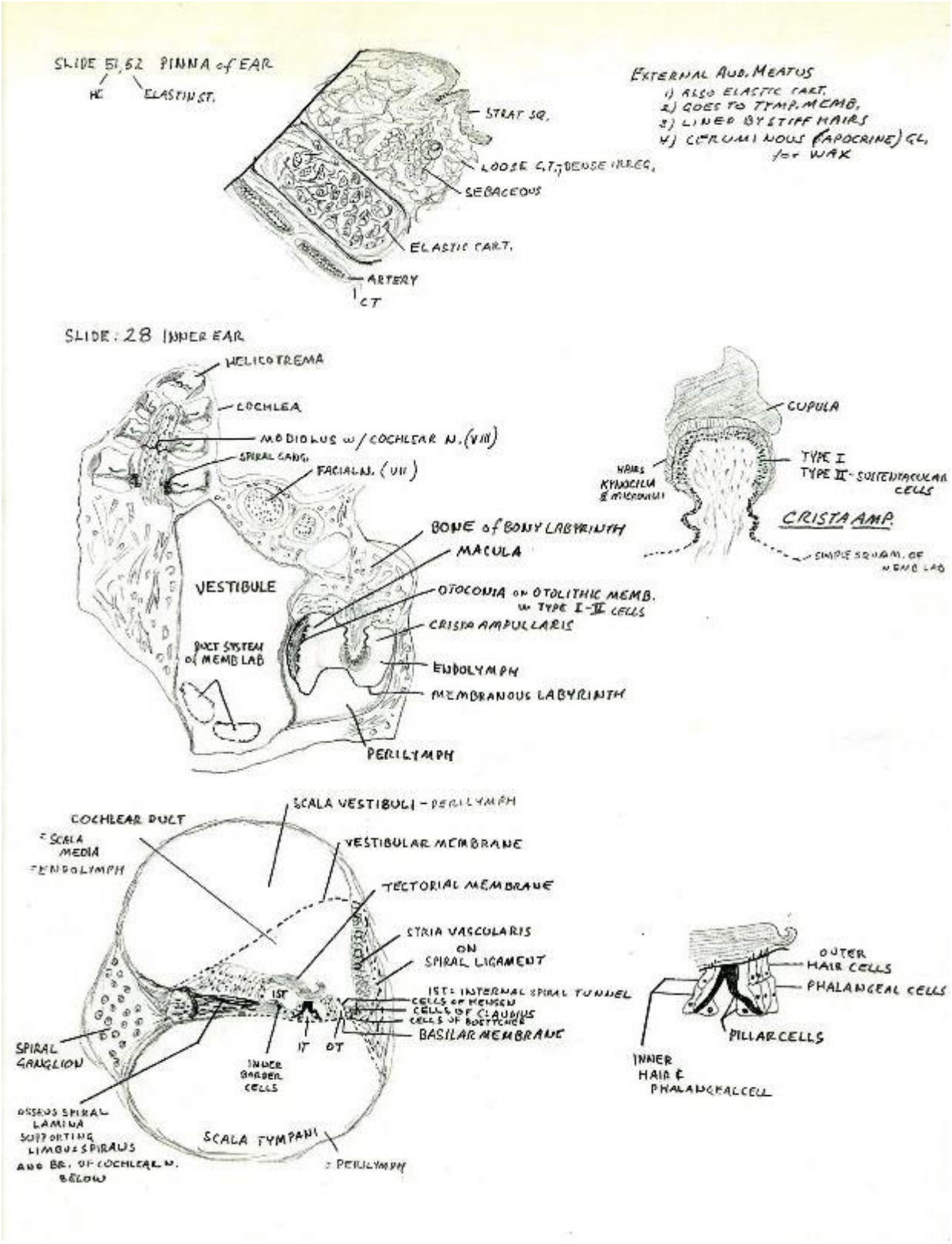
SMALL INTESTINE, # 13, 14 – PARASYMPATHETIC GANGLIA BETWEEN C.M.L. & L.M.L.

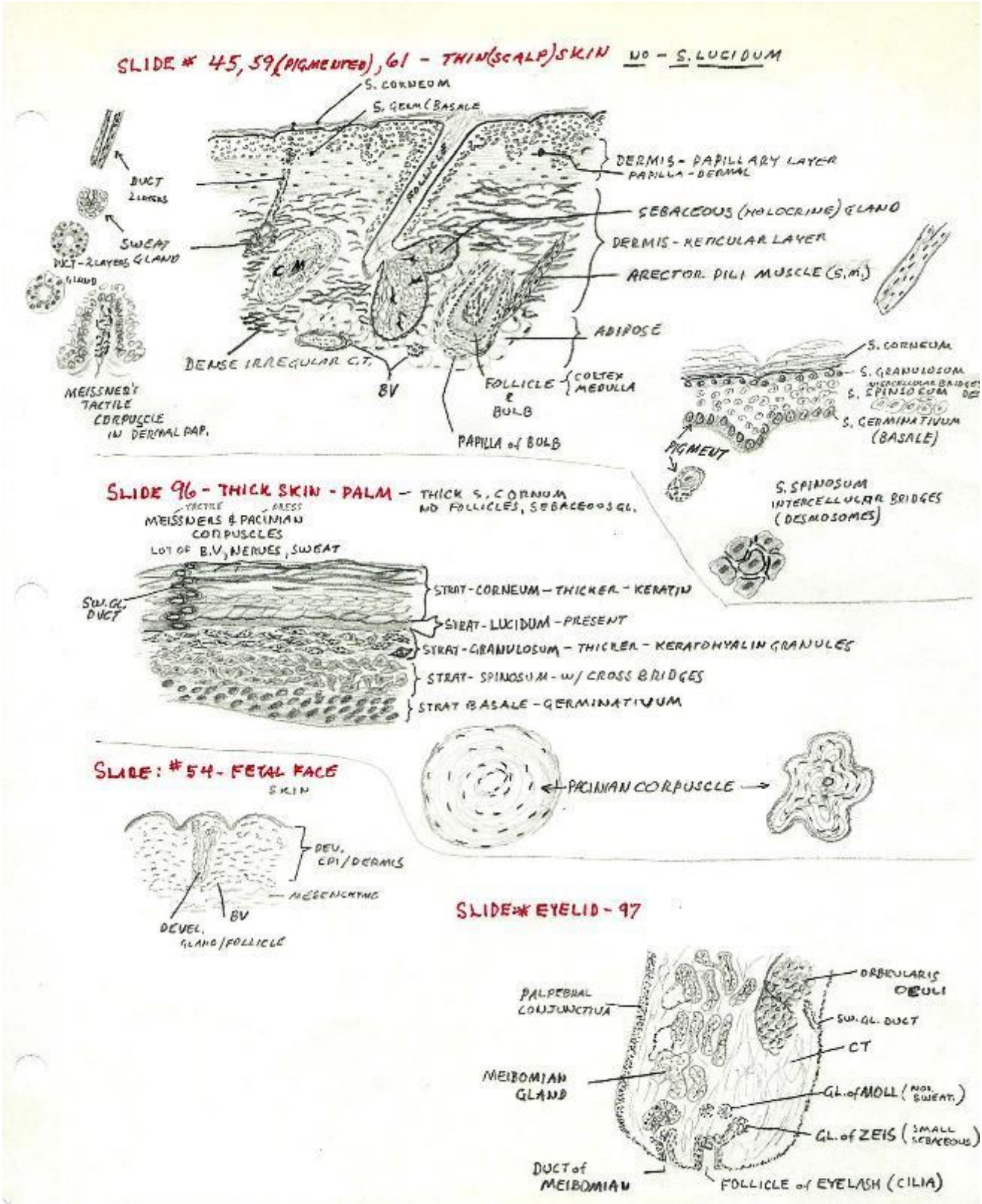


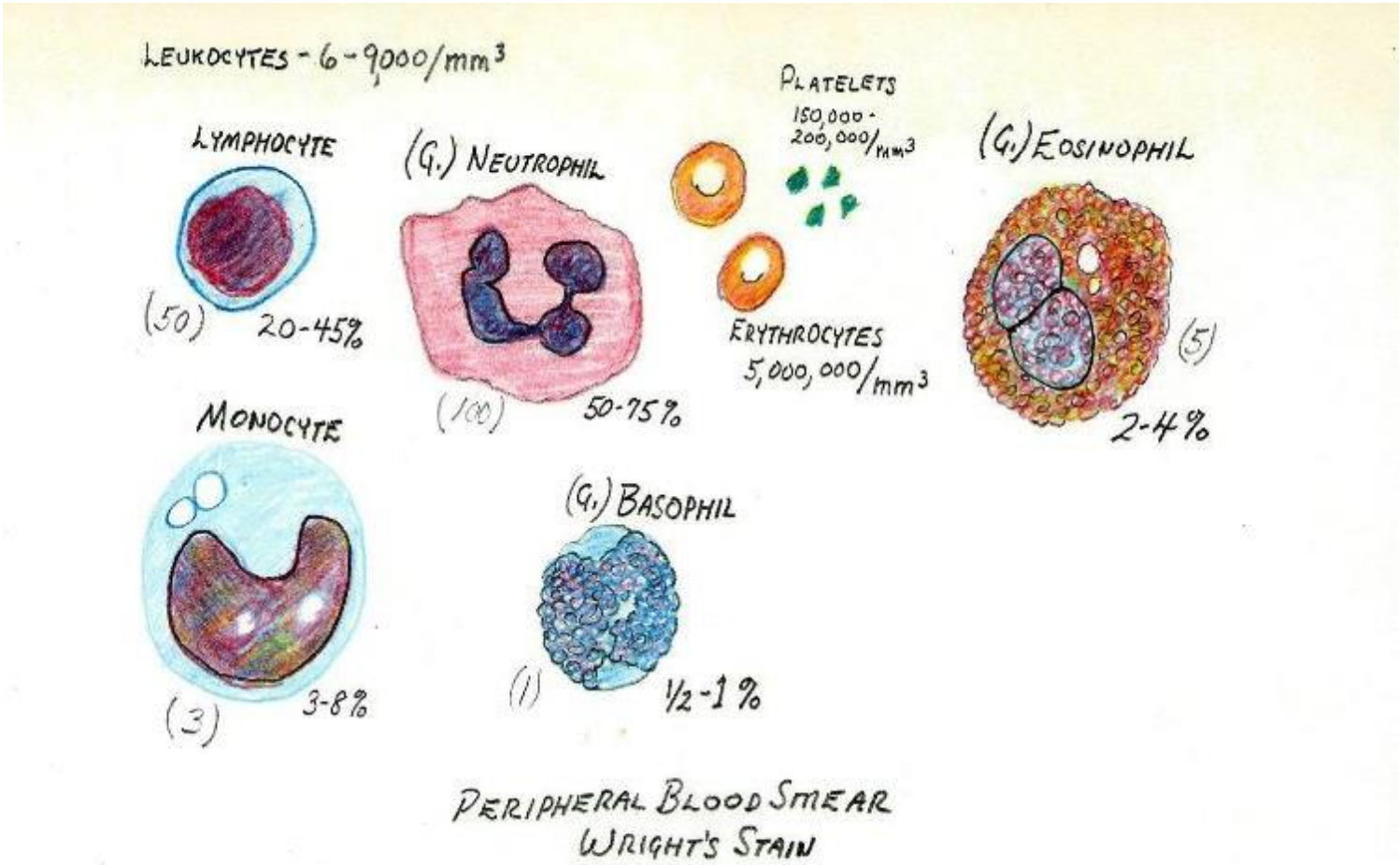
NERVE # 56, 57, 74 – PERIPHERAL NERVES C.S., L.S.

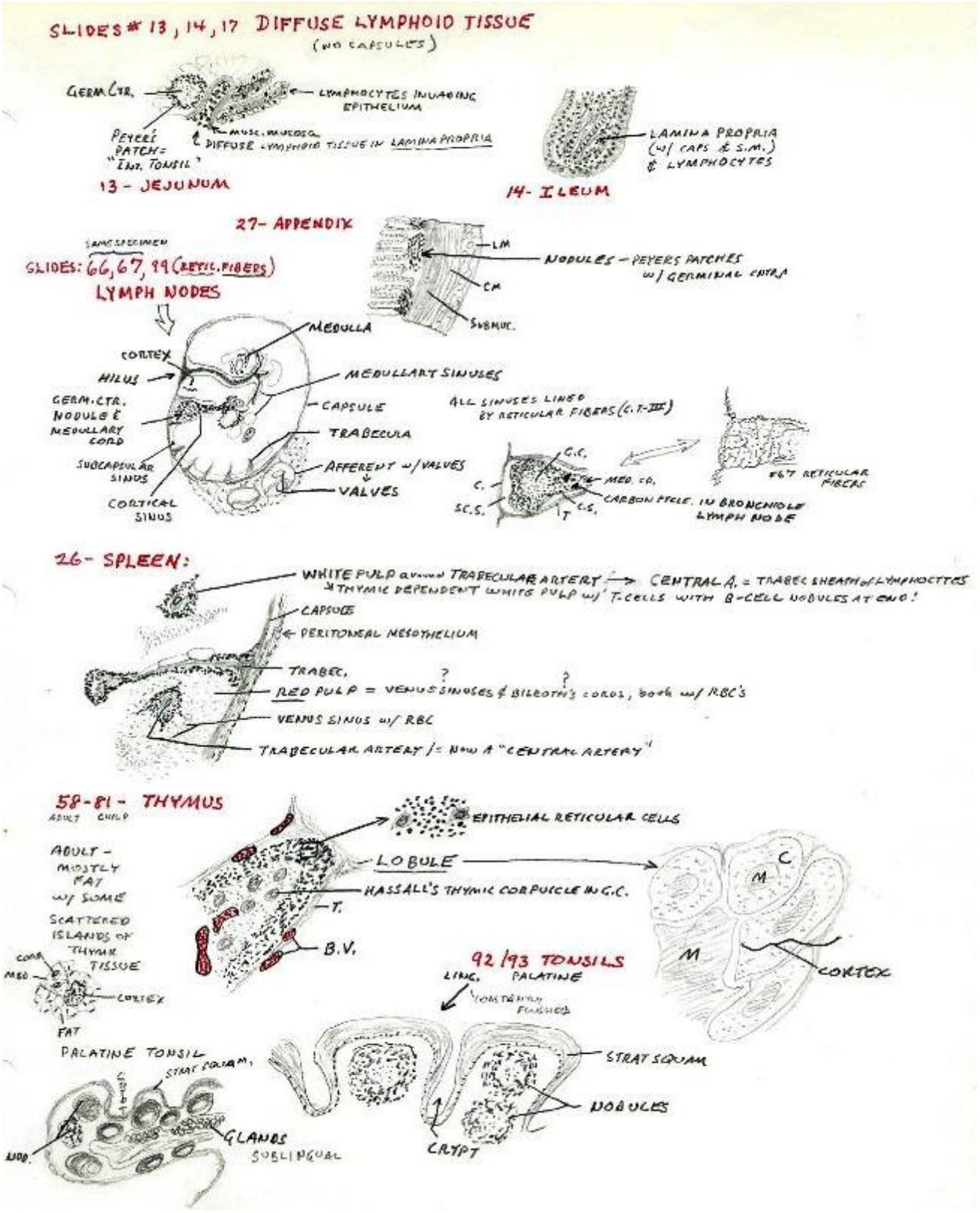


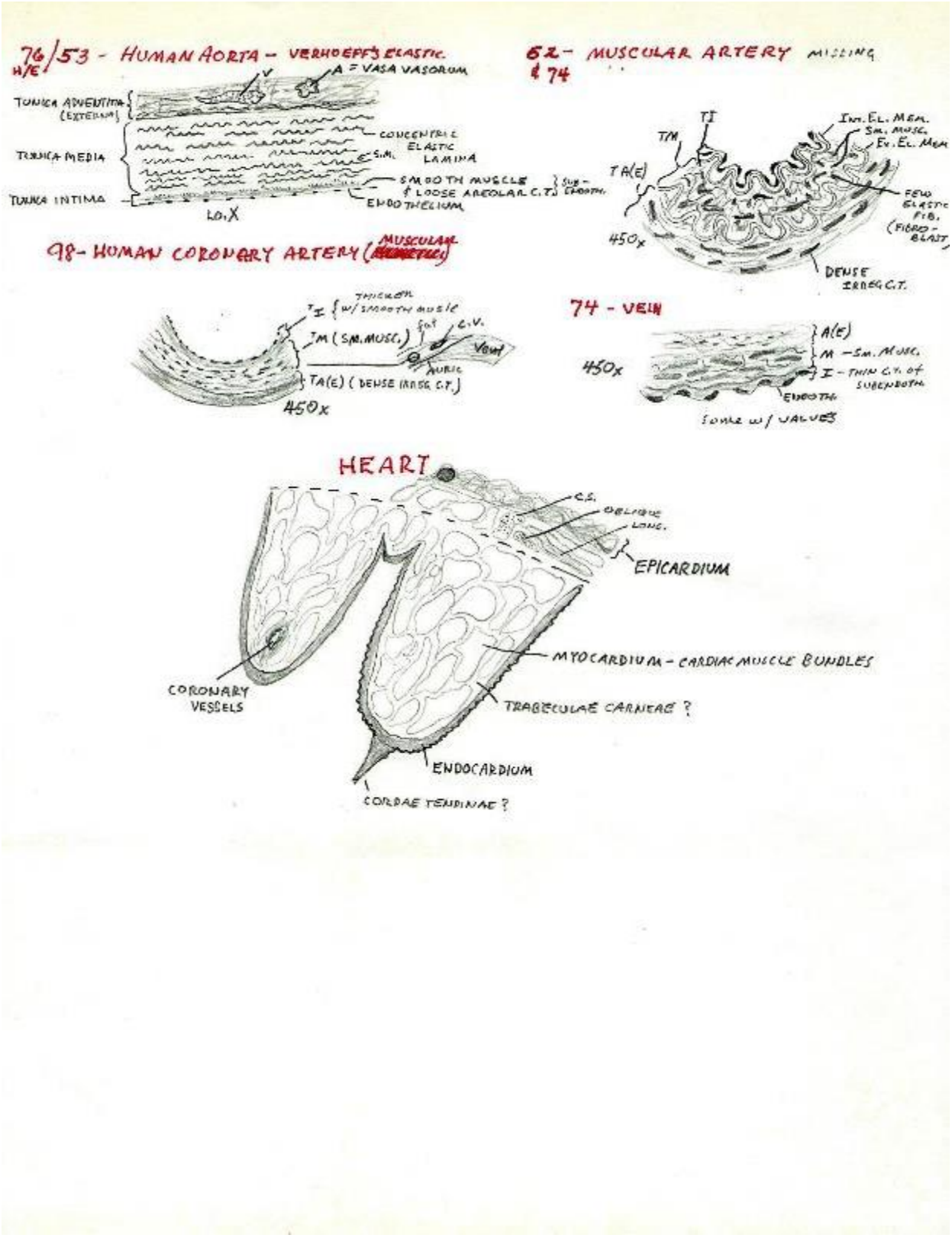

PALPEBRAL CONJ.
CORNEAL CONJUNCTIVAL EP.
CANAL: SCHLEMM
CORNEA
LIMBUS w/ TRABECULAE of DESC. MEMB.
CIRCULAR A & V
AQUEOUS HUMOR
ANT. CH.
IRIDIAL EP.
IRIS
CILIARY BODY
CILIARY MUSCLE
VASCULAR LAYER
POSTERIOR CH.
ANT. EP. of LENS
MIGRATION
LENS
RETINA
CHOROID
SCLERA
ORA SERRATA
LAMINA VITREA
CILIARY STRAT. (2) CUBOIDAL
ZONULAR FIBERS
CAPSULE
CILIARY PROCESSES
VITREOUS CH. (+HUMOR)
I.L.M.-10
N.F.L.-9
G.C.L.-8
I.P.L.-7
I.N.L.-6
O.P.L.-5
O.N.L.-4
E.L.M.-3
R & C-2
R.P.L.-1
LAMINA VITREA
RODS - 120 MIL - RHODOPSIN
CONES - 6 MIL - IODOPSIN
MACULA + FOVEA CENT.
OPTIC DISC
CENTRAL A.
CRIBRIFORM PLATE
O.N.

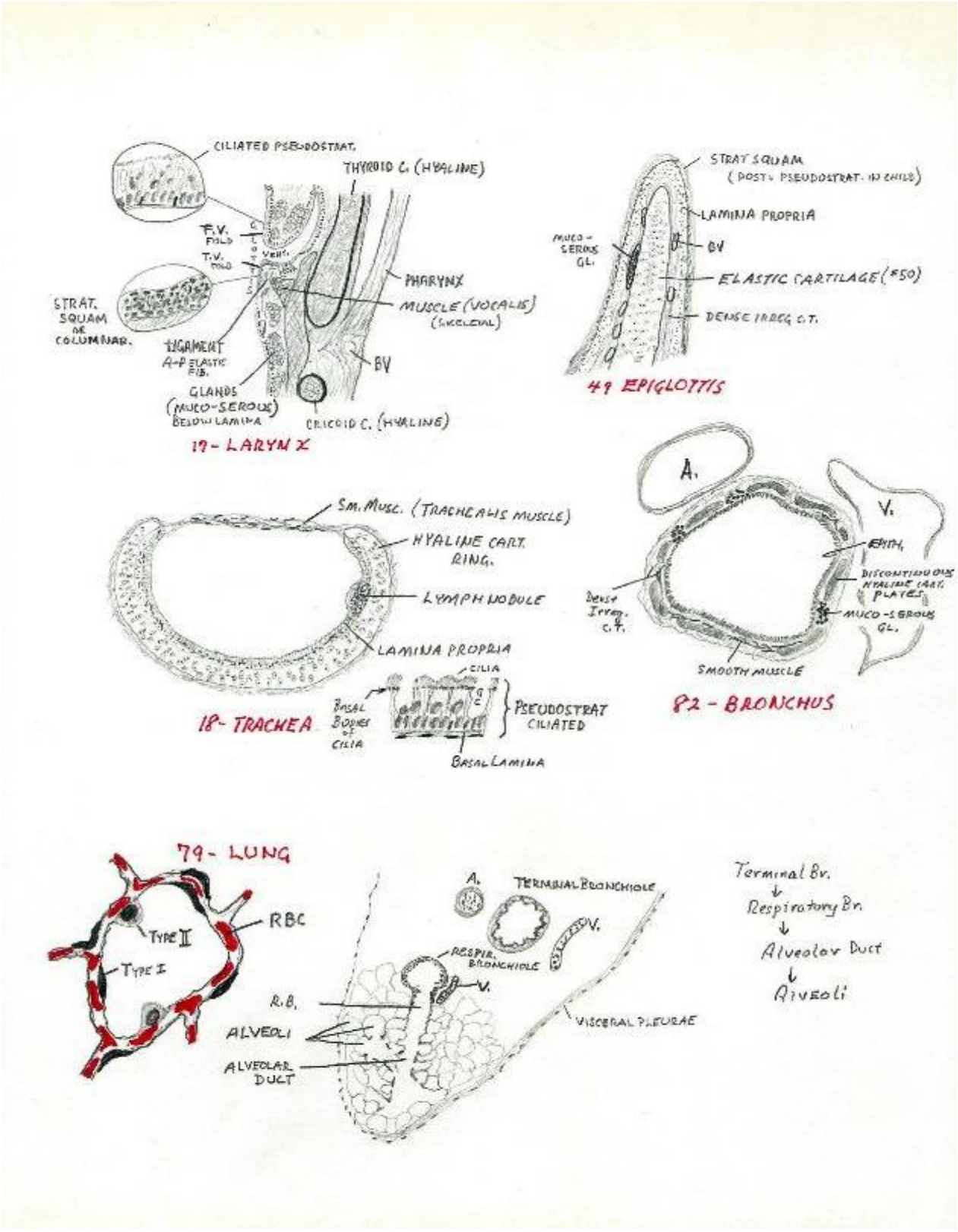

SLIDE 51, 52 PINNA of EAR
HC
ELASTIN ST.
STRAT SQ.
LOOSE C.T.; DENSE IRREG.
SEBACEOUS
ELASTIC CART.
ARTERY
CT
EXTERNAL AUD. MEATUS
1) ALSO ELASTIC CART.
2) GOES TO TYMP. MEMB.
3) LINED BY STIFF HAIRS
4) CERUMINOUS (APOCRINE) GL. for WAX
SLIDE: 28 INNER EAR
HELICOTREMA
COCHLEA
MODIOLUS w/ COCHLEAR N. (VIII)
SPIRAL GANG.
FACIAL N. (VII)
BONE of BONY LABYRINTH
MACULA
VESTIBULE
OTOCONIA on OTOLITHIC MEMB. w TYPE I-II CELLS
CRISTA AMPULLARIS
DUCT SYSTEM of MEMB LAB
ENDOLYMPH
MEMBRANOUS LABYRINTH
PERILYMPH
CUPULA
HAIRS KINOCILIA & MICROVILLI
TYPE I
TYPE II - SUSTENTACULAR CELLS
CRISTA AMP.
SIMPLE SQUAM. OF MEMB LAB
COCHLEAR DUCT
= SCALA MEDIA
= ENDOLYMPH
SCALA VESTIBULI - PERILYMPH
VESTIBULAR MEMBRANE
TECTORIAL MEMBRANE
STRIA VASCULARIS ON SPIRAL LIGAMENT
1ST: INTERNAL SPIRAL TUNNEL
CELLS of HENSEN
CELLS of CLAUDIUS
CELLS of BOETTCHER
BASILAR MEMBRANE
1ST
IT
OT
SPIRAL GANGLION
INNER BARBER CELLS
OSSEUS SPIRAL LAMINA SUPPORTING LIMBUS SPIRALIS AND BR. OF COCHLEAR N. BELOW
SCALA TYMPANI
= PERILYMPH
OUTER HAIR CELLS
PHALANGEAL CELLS
PILLAR CELLS
INNER HAIR & PHALANGEAL CELL

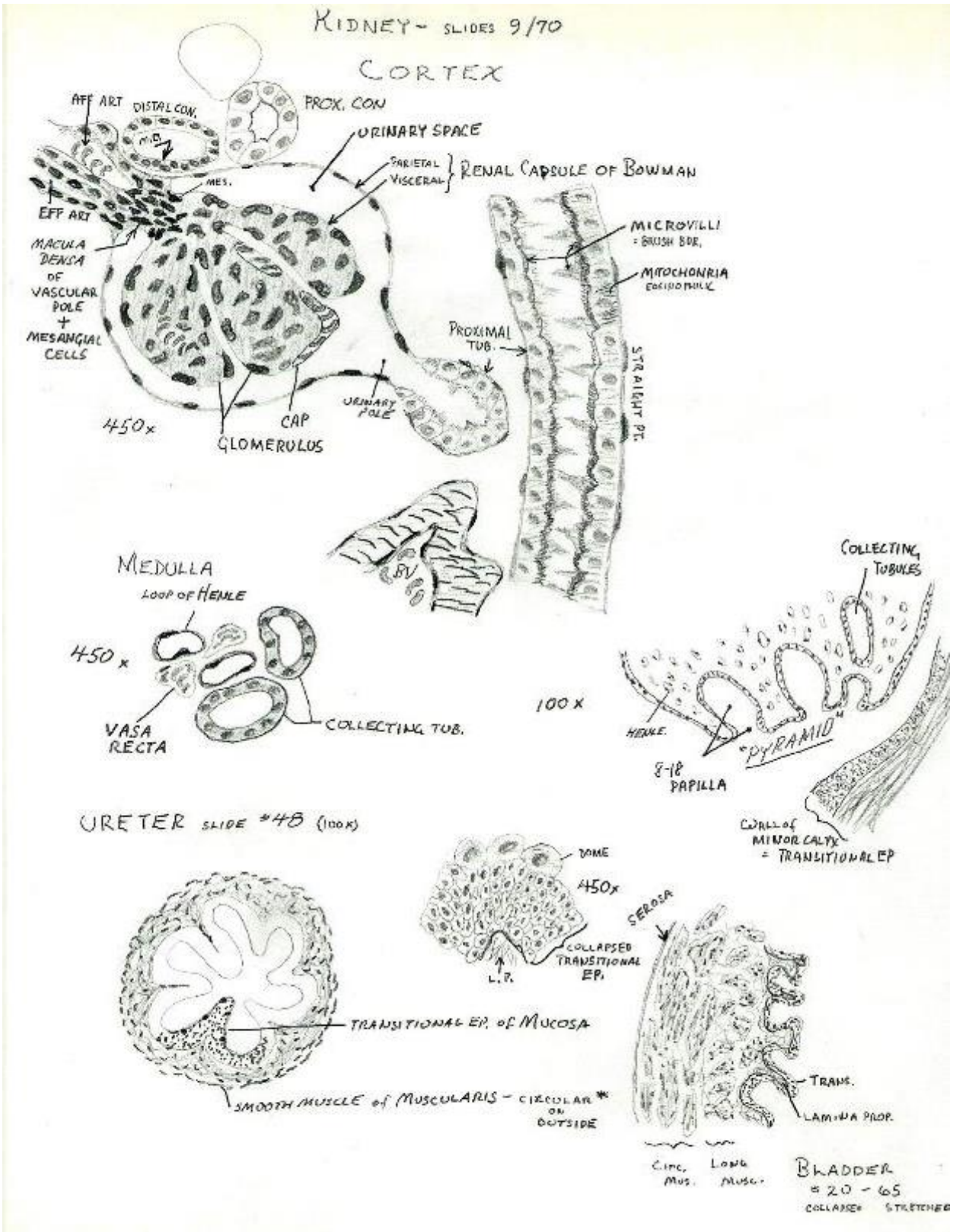

SLIDE # 45, 59 (PIGMENTED), 61 - THIN (SCALP) SKIN NO - S. LUCIDUM
S. CORNEUM
S. GERM (BASALE
DERMIS - PAPILLARY LAYER
PAPILLA - DERMAL
BUCT 2 LAYERS
SWEAT
DUCT - 2 LAYERS GLAND
SEBACEOUS (HOLOCRINE) GLAND
DERMIS - RETICULAR LAYER
ARRECTOR PILI MUSCLE (S.M.)
ADIPOSE
DENSE IRREGULAR C.T.
BV
FOLLICLE & BULB
CORTEX MEDULLA
PAPILLA of BULB
MEISSNER'S TACTILE CORPUSCLE IN DERMAL PAP.
S. CORNEUM
S. GRANULOSUM
S. SPINOSUM
S. GERMINATIVUM (BASALE)
PIGMENT
S. SPINOSUM INTERCELLULAR BRIDGES (DESMOSOMES)
SLIDE 96 - THICK SKIN - PALM - THICK S. CORNUM NO FOLLICLES, SEBACEOUS GL.
MEISSNERS & PACINIAN CORPUSCLES
LOT OF B.V., NERVES, SWEAT
SW. GL. DUCT
STRAT - CORNEUM - THICKER - KERATIN
STRAT - LUCIDUM - PRESENT
STRAT - GRANULOSUM - THICKER - KERATOHYALIN GRANULES
STRAT - SPINOSUM - W/ CROSS BRIDGES
STRAT BASALE - GERMINATIVUM
PACINIAN CORPUSCLE
SLIDE: #54 - FETAL FACE SKIN
DEV. EPI/DERMIS
MESENCHYME
BV
DEVEL. GLAND/FOLLICLE
SLIDE # EYELID - 97
PALPEBRAL CONJUNCTIVA
ORBICULARIS OCULI
SW. GL. DUCT
CT
MEIBOMIAN GLAND
GL. of MOLL (MOD. SWEAT.)
GL. of ZEIS (SMALL SEBACEOUS)
DUCT of MEIBOMIAN
FOLLICLE of EYELASH (CILIA)

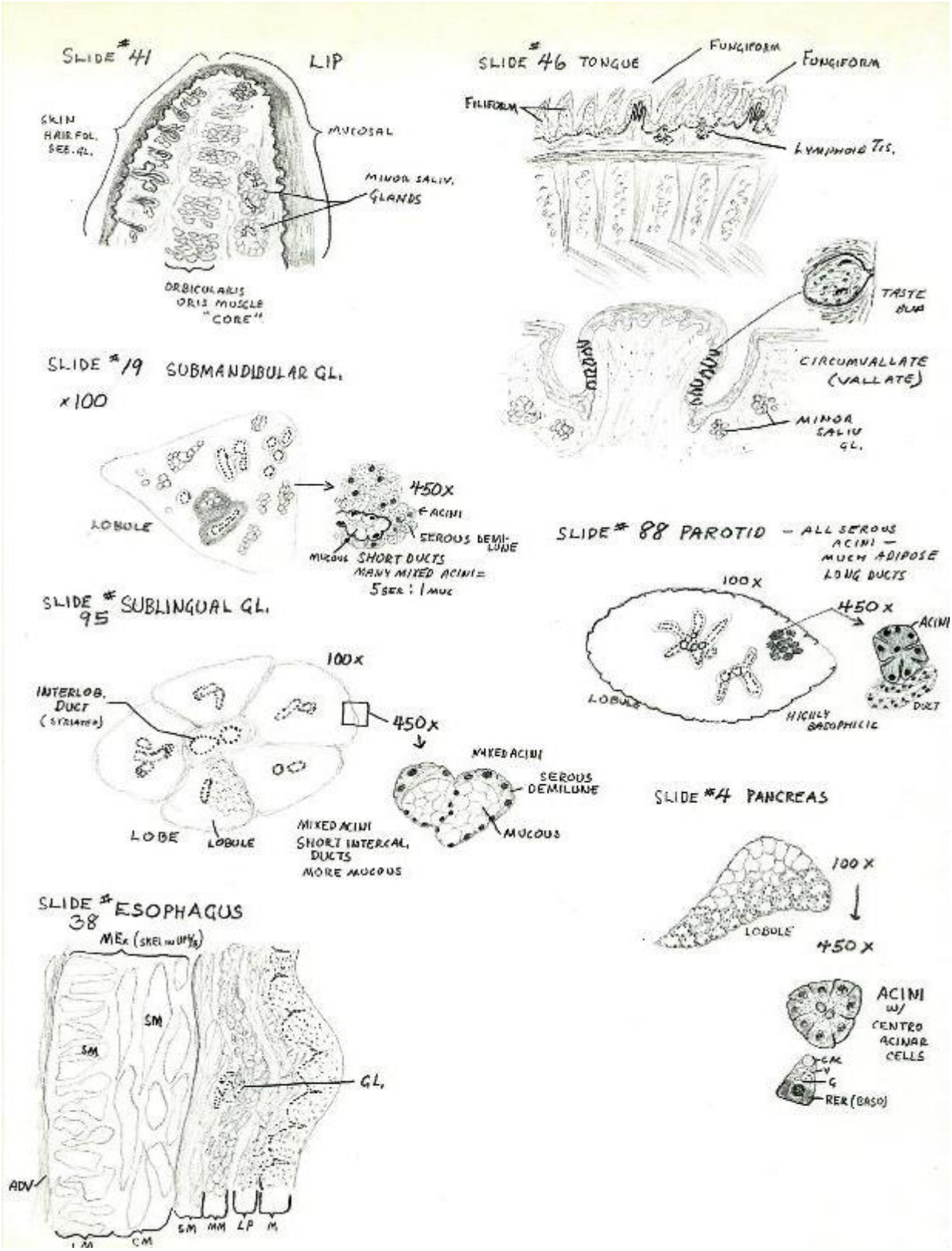

LEUKOCYTES - 6-9,000/mm3
LYMPHOCYTE
(50)
20-45%
(G.) NEUTROPHIL
(100)
50-75%
PLATELETS
150,000 - 200,000/mm3
ERYTHROCYTES
5,000,000/mm3
(G.) EOSINOPHIL
(5)
2-4%
MONOCYTE
(3)
3-8%
(G.) BASOPHIL
(1)
½-1%
PERIPHERAL BLOOD SMEAR
WRIGHT'S STAIN

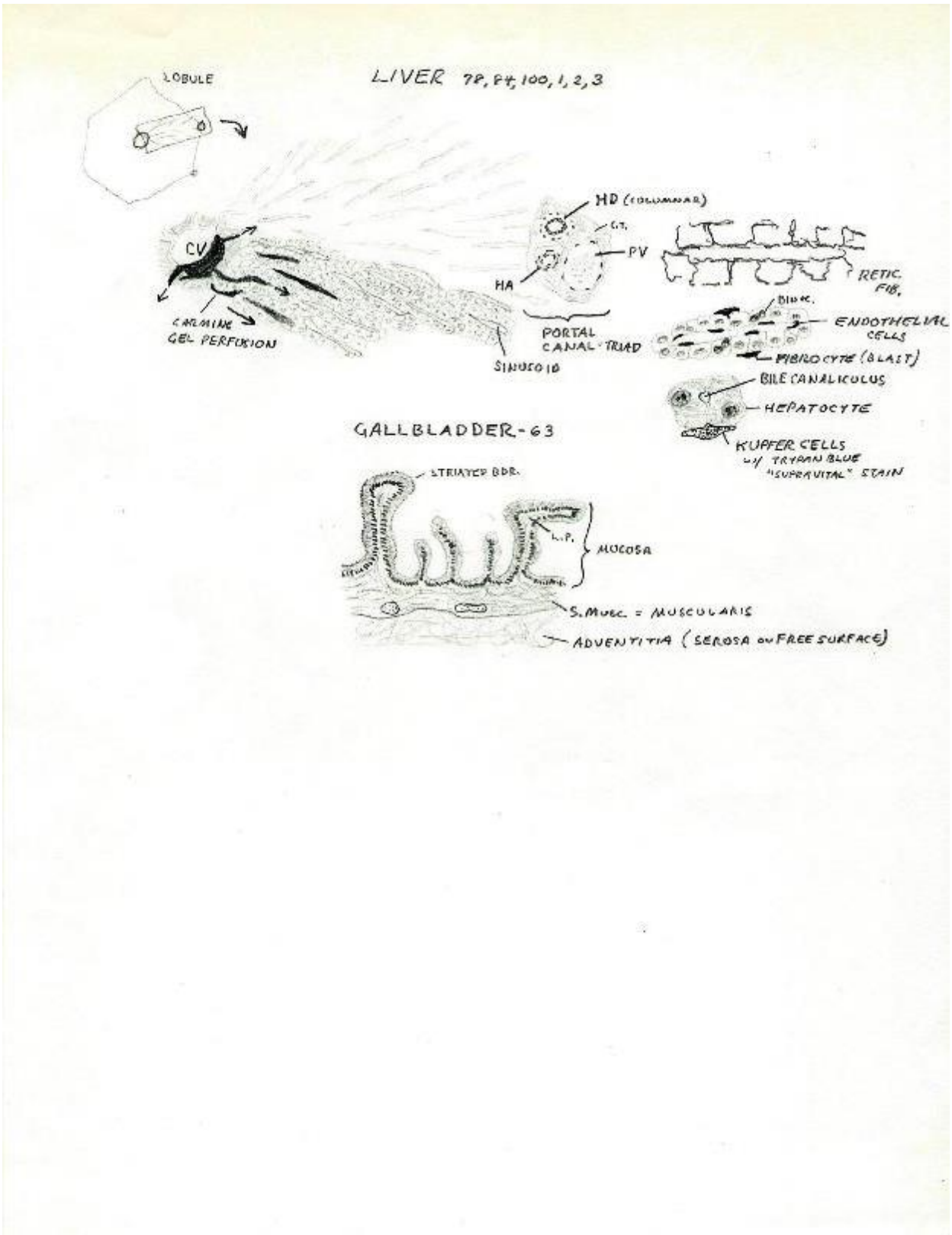

SLIDES # 13, 14, 17 DIFFUSE LYMPHOID TISSUE
(NO CAPSULES)
GERM CTR.
LYMPHOCYTES INVADING EPITHELIUM
PEYER'S PATCH = "Ileal Tonsil"
MUSC. MUCOSAE
DIFFUSE LYMPHOID TISSUE IN LAMINA PROPRIA
13 - JEJUNUM
LAMINA PROPRIA (w/ caps & S.M.) & LYMPHOCYTES
14- ILEUM
27- APPENDIX
LM
NODULES - PEYERS PATCHES w/ GERMINAL CNTRS
CM
SUBMUC.
SAME SPECIMEN
SLIDES: 66, 67, 99 (RETIC. FIBERS)
LYMPH NODES
MEDULLA
CORTEX
HILUS
MEDULLARY SINUSES
GERM. CTR. NODULE & MEDULLARY CORD
CAPSULE
TRABECULA
SUBCAPSULAR SINUS
AFFERENT w/ VALVES
VALVES
CORTICAL SINUS
ALL SINUSES LINED BY RETICULAR FIBERS (C.T.-III)
C.C.
C.
MED. CD.
SC.S.
C.S.
T
CARBON PTCLE. IN BRONCHIOLE LYMPH NODE
#67 RETICULAR FIBERS
26- SPLEEN:
WHITE PULP around TRABECULAR ARTERY → CENTRAL A. = TRABEC SHEATH of LYMPHOCYTES
THYMIC DEPENDENT WHITE PULP w/ T-CELLS WITH B-CELL NODULES AT END!
CAPSULE
PERITONEAL MESOTHELIUM
TRABEC.
RED PULP = VENUS SINUSES & BILROTH'S CORDS, both w/ RBC's
VENUS SINUS w/ RBC
TRABECULAR ARTERY /= Now A "CENTRAL ARTERY"
58-81 - THYMUS
ADULT
CHILD
EPITHELIAL RETICULAR CELLS
ADULT - MOSTLY FAT w/ SOME SCATTERED ISLANDS OF THYMIC TISSUE
LOBULE
HASSALL'S THYMIC CORPUSCLE IN C.C.
T.
B.V.
C
M
M
CORTEX
CORT.
MED.
CORTEX
FAT
92/93 TONSILS
LING.
PALATINE
PALATINE TONSIL
STRAT SQUAM.
STRAT SQUAM
NODULES
GLANDS
SUBLINGUAL
CRYPT

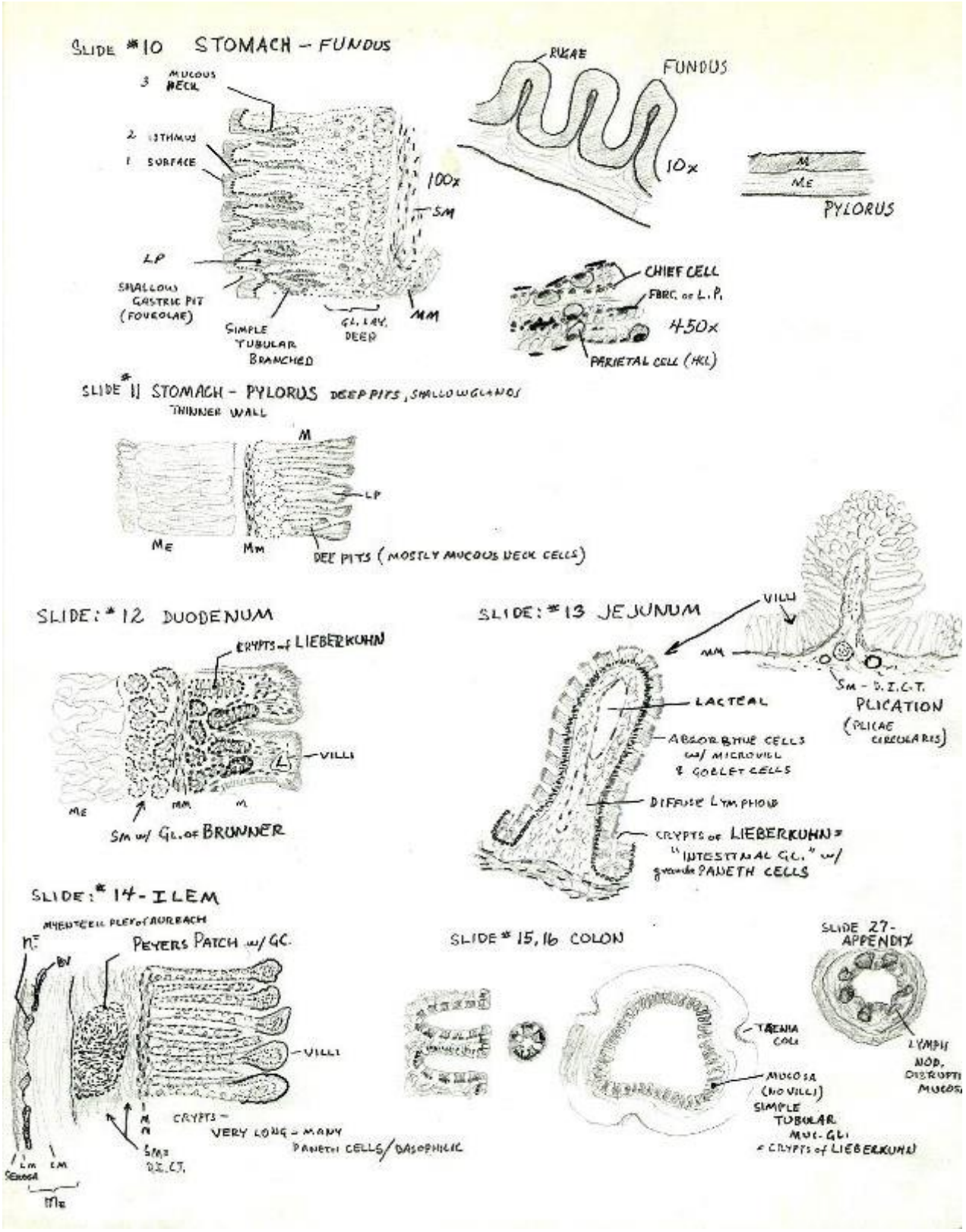

76/53 - HUMAN AORTA - VERHOEFF'S ELASTIC
H/E
A = VASA VASORUM
TUNICA ADVENTITIA (EXTERNA)
TUNICA MEDIA
TUNICA INTIMA
CONCENTRIC ELASTIC LAMINA
S.M.
SMOOTH MUSCLE & LOOSE AREOLAR C.T.
SUB-ENDOTH.
ENDOTHELIUM
LO. X
62 - MUSCULAR ARTERY MISSING
& 74
TI
TM
TA(E)
INT. EL. MEM.
SM. MUSC.
EX. EL. MEM.
FEW ELASTIC FIB. (FIBRO-BLAST)
450x
DENSE IRREG C.T.
98 - HUMAN CORONARY ARTERY (MUSCULAR)
I (THICKER W/ SMOOTH MUSCLE)
IM (SM. MUSC.)
fat
C.V.
Vein
AURIC
TA(E) (DENSE IRREG C.T.)
450x
74 - VEIN
A(E)
M - SM. MUSC.
I - THIN C.T. of SUBENDOTH.
450x
ENDOTH.
some w/ VALVES
HEART
C.S.
OBLIQUE LONG.
EPICARDIUM
MYOCARDIUM - CARDIAC MUSCLE BUNDLES
CORONARY VESSELS
TRABECULAE CARNEAE ?
ENDOCARDIUM
CORDAE TENDINAE ?

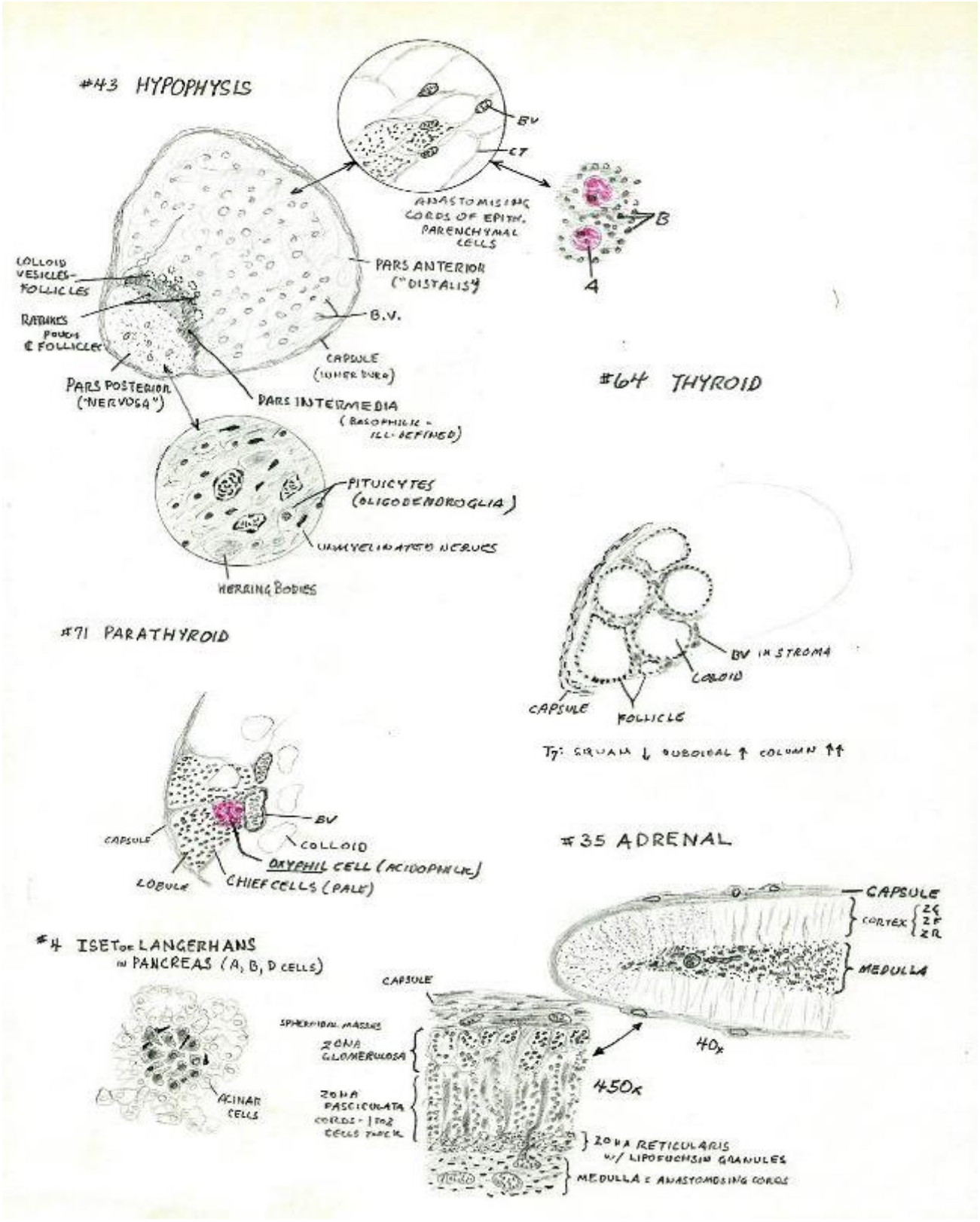

CILIATED PSEUDOSTRAT.
THYROID C. (HYALINE)
F.V. FOLD
T.V. FOLD
VENT.
PHARYNX
MUSCLE (VOCALIS) (SKELETAL)
STRAT. SQUAM. TO COLUMNAR.
LIGAMENT A-P ELASTIC FIB.
BV
GLANDS (MUCO-SEROUS) BELOW LAMINA
CRICOID C. (HYALINE)
17 - LARYNX
STRAT SQUAM. (POST. PSEUDOSTRAT. IN CHILD)
LAMINA PROPRIA
MUCO-SEROUS GL.
BV
ELASTIC CARTILAGE (*50)
DENSE IRREG. C.T.
49 EPIGLOTTIS
SM. MUSC. (TRACHEALIS MUSCLE)
HYALINE CART. RING.
LYMPH NODULE
LAMINA PROPRIA
CILIA
BASAL BODIES OF CILIA
PSEUDOSTRAT CILIATED
BASAL LAMINA
18- TRACHEA
A.
V.
EPITH.
DISCONTINUOUS HYALINE CART. PLATES
DENSE IRREG. C.T.
MUCO-SEROUS GL.
SMOOTH MUSCLE
82 - BRONCHUS
79 - LUNG
RBC
TYPE II
TYPE I
A.
TERMINAL BRONCHIOLE
V.
RESPIR. BRONCHIOLE
V.
R.B.
ALVEOLI
ALVEOLAR DUCT
VISCERAL PLEURAE
Terminal Br.
↓
Respiratory Br.
↓
Alveolar Duct
↓
Alveoli

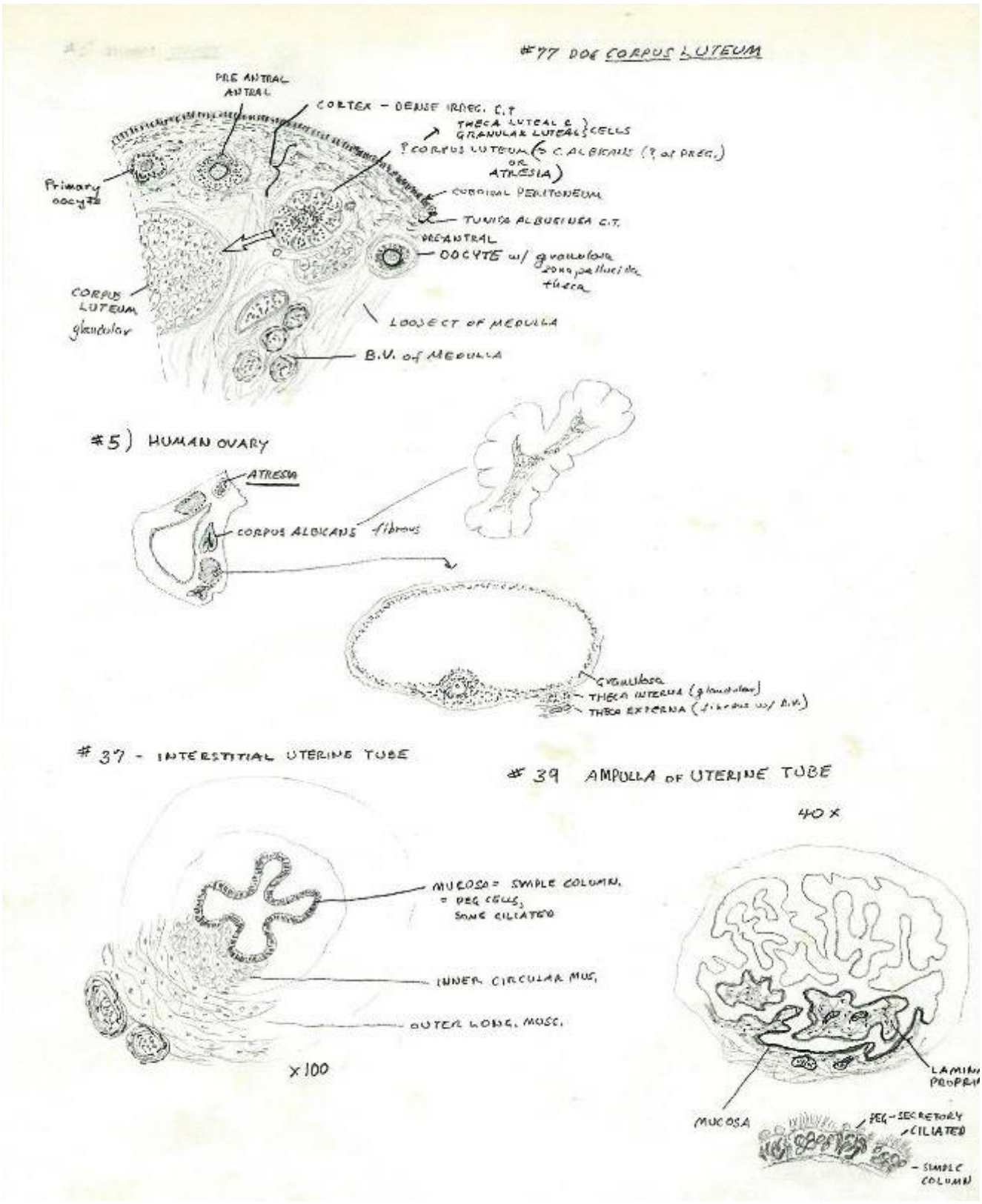

KIDNEY - SLIDES 9/70
CORTEX
AFF ART
DISTAL CON.
PROX. CON
URINARY SPACE
PARIETAL
VISCERAL
RENAL CAPSULE OF BOWMAN
MES.
EFF ART
MACULA DENSA OF VASCULAR POLE + MESANGIAL CELLS
MICROVILLI = BRUSH BDR.
MITOCHONRIA
PROXIMAL TUB.
STRAIGHT PT.
450x
CAP
GLOMERULOS
URINARY POLE
BV
MEDULLA
LOOP OF HENLE
450 x
VASA RECTA
COLLECTING TUB.
COLLECTING TUBULES
100 x
HENLE
PYRAMID
8-18 PAPILLA
WALL OF MINOR CALYX = TRANSITIONAL EP
URETER SLIDE #48 (100X)
DOME
450x
COLLAPSED TRANSITIONAL EP.
L.P.
SEROSA
TRANSITIONAL EP. of MUCOSA
SMOOTH MUSCLE of MUSCULARIS - CIRCULAR ON OUTSIDE
TRANS.
LAMINA PROP.
CIRC. MUS.
LONG MUSC.
BLADDER
= 20 - 65
COLLAPSED
STRETCHED

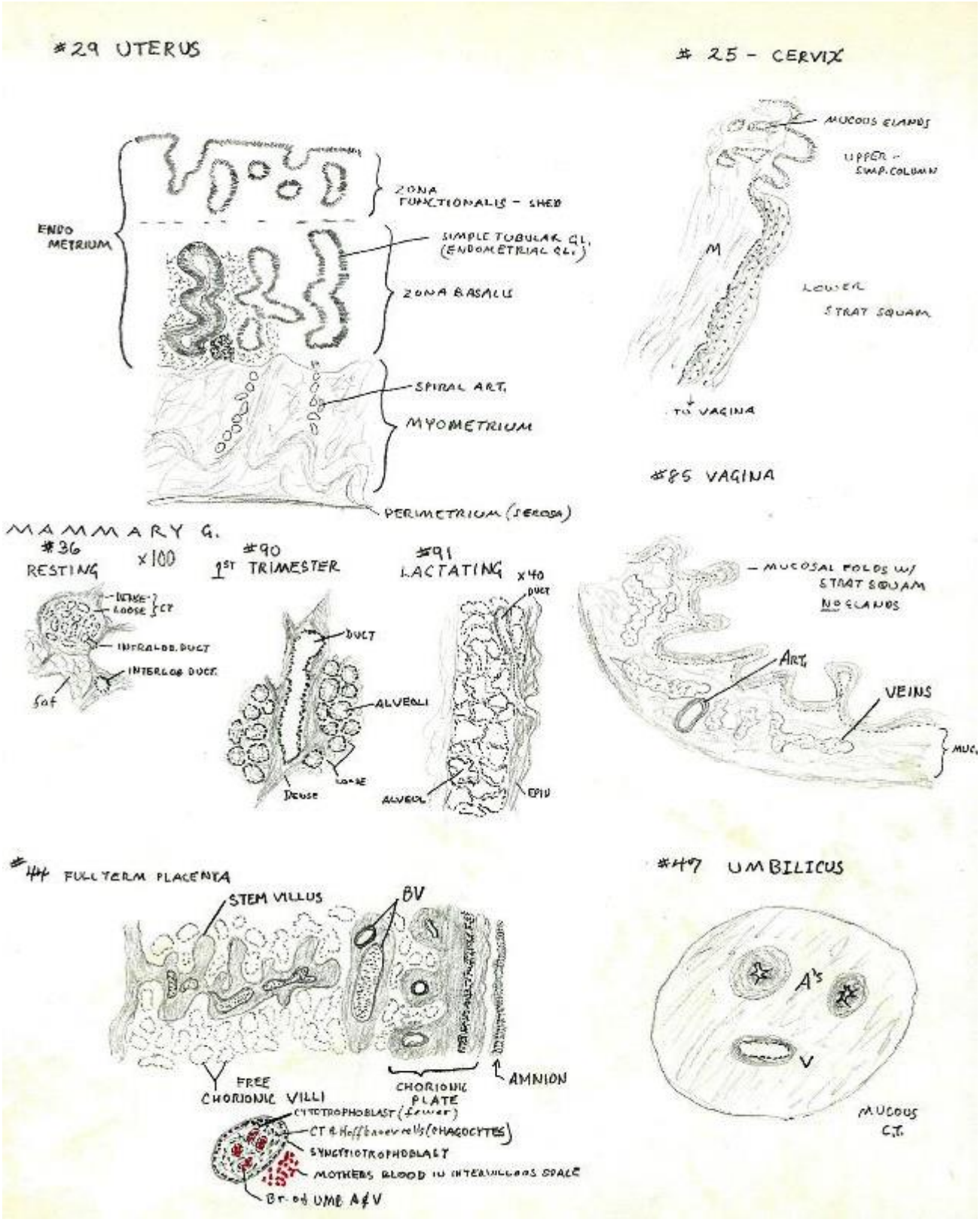

SLIDE #41 LIP
SKIN
HAIR FOL.
SEB. GL.
MUCOSAL
MINOR SALIV. GLANDS
ORBICULARIS ORIS MUSCLE "CORE"
SLIDE #46 TONGUE
FUNGIFORM
FUNGIFORM
FILIFORM
LYMPHOID TIS.
TASTE BUD
CIRCUMVALLATE (VALLATE)
MINOR SALIV GL.
SLIDE #19 SUBMANDIBULAR GL.
x100
LOBULE
450X
ACINI
SEROUS DEMI-LUNE
MUCOUS
SHORT DUCTS
MANY MIXED ACINI=
5 SER : 1 MUC
SLIDE #88 PAROTID – ALL SEROUS ACINI – MUCH ADIPOSE LONG DUCTS
100X
450X
ACINI
LOBULE
DUCT
HIGHLY BASOPHILIC
SLIDE #95 SUBLINGUAL GL.
100X
INTERLOB. DUCT (STRIATED)
450X
MIXED ACINI
SEROUS DEMILUNE
MUCOUS
LOBE
LOBULE
MIXED ACINI
SHORT INTERCAL. DUCTS
MORE MUCOUS
SLIDE #4 PANCREAS
100X
LOBULE
450X
ACINI W/ CENTRO ACINAR CELLS
CM
V
G
RER (BASO)
SLIDE #38 ESOPHAGUS
ME (SKEL MUSC)
SM
SM
GL.
ADV
SM
MM
LP
M
LM
CM

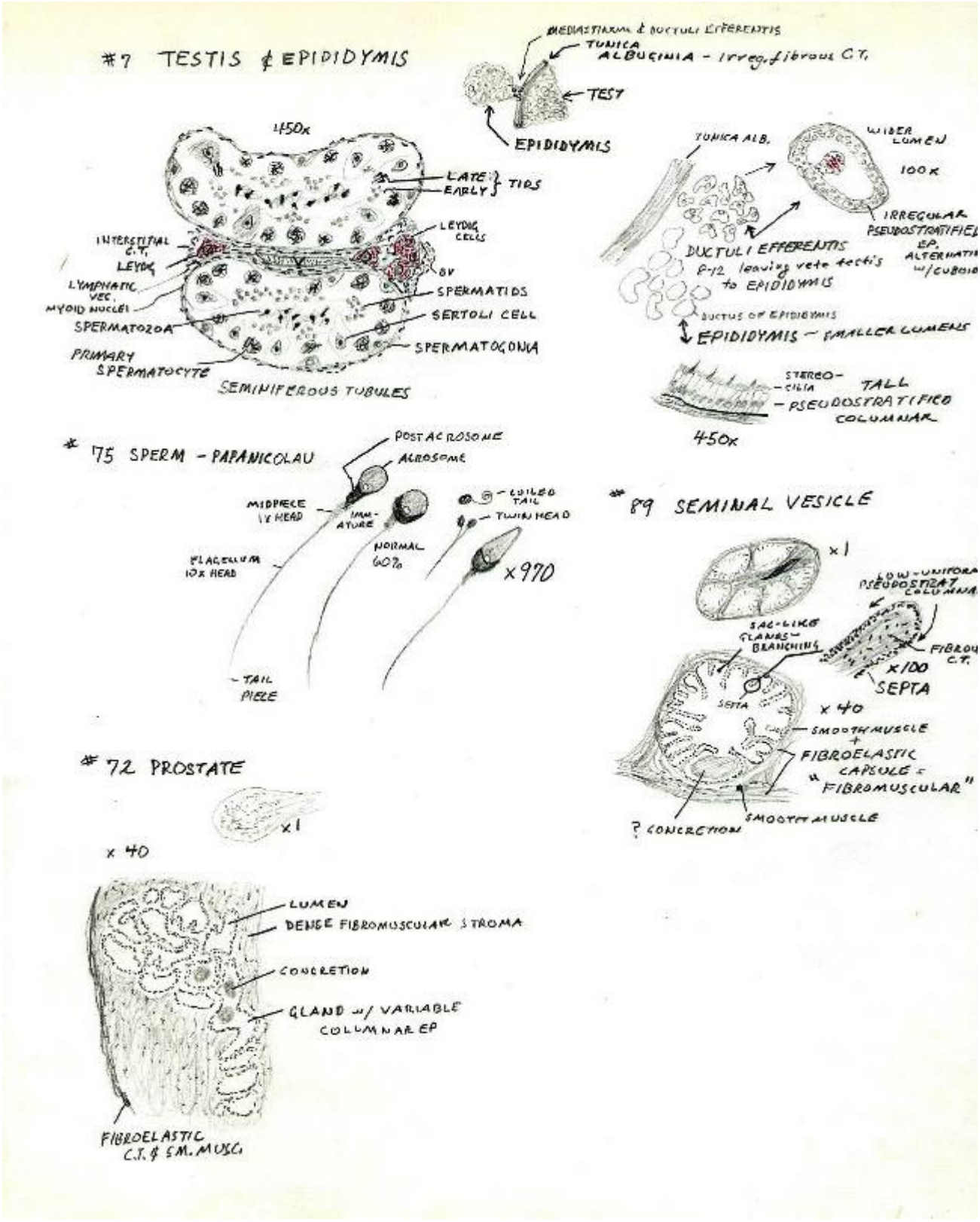

LOBULE
LIVER 78, 84, 100, 1, 2, 3
CV
CARMINE GEL PERFUSION
HD (COLUMNAR)
G.T.
PV
HA
PORTAL CANAL TRIAD
SINUSOID
RETIC. FIB.
ENDOTHELIAL CELLS
FIBROCYTE (BLAST)
BILE CANALICULUS
HEPATOCYTE
KUPFER CELLS
w/ TRYPAN BLUE "SUPRAVITAL" STAIN
GALLBLADDER-63
STRIATED BDR.
L.P.
MUCOSA
S. MUSC. = MUSCULARIS
ADVENTITIA (SEROSA ON FREE SURFACE)


SLIDE #10 STOMACH – FUNDUS
3 MUCOUS NECK
2 ISTHMUS
1 SURFACE
100x
SM
LP
SHALLOW GASTRIC PIT (FOVEOLAE)
SIMPLE TUBULAR BRANCHED
GL. LAY. DEEP
MM
RUGAE
FUNDUS
10x
M
ME
PYLORUS
CHIEF CELL
FBRC. of L.P.
450x
PARIETAL CELL (HCL)
SLIDE #11 STOMACH – PYLORUS DEEP PITS, SHALLOW GLANDS
THINNER WALL
M
LP
ME
MM
DEE PITS (MOSTLY MUCOUS NECK CELLS)
SLIDE: #12 DUODENUM
CRYPTS of LIEBERKUHN
VILLI
ME
MM
M
SM w/ GL. of BRUNNER
SLIDE: #13 JEJUNUM
VILLI
MM
SM – D.C.T.
PLICATION
(PLICAE CIRCULARES)
LACTEAL
ABSORBTIVE CELLS w/ MICROVILL & GOBLET CELLS
DIFFUSE LYMPHOID
CRYPTS of LIEBERKUHN = "INTESTINAL GL." w/ granular PANETH CELLS
SLIDE: #14 - ILEM
MESENTERIC PLEXUS of AUERBACH
ME
BV
PEYERS PATCH w/ GC.
VILLI
CRYPTS – VERY LONG – MANY PANETH CELLS/BASOPHILIC
M
M
SM = D.C.T.
LM
CM
SEROSA
ME
SLIDE #15, 16 COLON
TAENIA COLI
MUCOSA (NO VILLI)
SIMPLE TUBULAR MUC. GL. = CRYPTS of LIEBERKUHN
SLIDE 27 - APPENDIX
LYMPH NOD. DISRUPTS MUCOS


#43 HYPOPHYSIS
BV
CT
ANASTOMOSING CORDS OF EPITH. PARENCHYMAL CELLS
B
4
COLLOID VESICLES-FOLLICLES
RATHKES POUCH & FOLLICLES
PARS ANTERIOR ("DISTALIS")
B.V.
CAPSULE (INNER DURA)
PARS POSTERIOR ("NERVOSA")
PARS INTERMEDIA (BASOPHILIC - ILL-DEFINED)
#64 THYROID
PITUICYTES (OLIGODENDROGLIA)
UNMYELINATED NERVES
HERRING BODIES
#71 PARATHYROID
BV IN STROMA
COLLOID
CAPSULE
FOLLICLE
T7: SQUAM ↓ CUBOIDAL ↑ COLUMN ↑↑
BV
CAPSULE
COLLOID
OXYPHIL CELL (ACIDOPHILIC)
LOBULE
CHIEF CELLS (PALE)
#35 ADRENAL
CAPSULE
CORTEX
ZG
ZF
ZR
MEDULLA
#4 ISET OF LANGERHANS IN PANCREAS (A, B, D CELLS)
CAPSULE
SPHERICAL MASSES
ZONA GLOMERULOSA
40x
450x
ACINAR CELLS
ZONA FASCICULATA
CORDS - 1 TO 2 CELLS THICK
ZONA RETICULARIS
W/ LIPOFUCHSIN GRANULES
MEDULLA & ANASTOMOSING CORDS


#77 DOG CORPUS LUTEUM
PRE ANTRAL
ANTRAL
CORTEX – DENSE IRREG. C.T
THECA LUTEAL & GRANULAR LUTEAL CELLS
? CORPUS LUTEUM (= C. ALBICANS (? at PREG.)
OR
ATRESIA)
Primary oocyte
COELOMIC PERITONEUM
TUNICA ALBUGINEA C.T.
PREANTRAL
OOCYTE w/ granulosa zona pellucida theca
CORPUS LUTEUM glandular
LOOSE CT of MEDULLA
B.V. of MEDULLA
#5) HUMAN OVARY
ATRESIA
CORPUS ALBICANS fibrous
Granulosa
THECA INTERNA (glandular)
THECA EXTERNA (fibrous w/ B.V.)
# 37 - INTERSTITIAL UTERINE TUBE
MUCOSA = SIMPLE COLUMN. + PEG CELLS, SOME CILIATED
INNER CIRCULAR MUS.
OUTER LONG. MUSC.
x100
39 AMPULLA OF UTERINE TUBE
40 X
LAMINA PROPRIA
MUCOSA
PEG – SECRETORY
CILIATED
SIMPLE COLUMN


#29 UTERUS
ENDO METRIUM
ZONA FUNCTIONALIS - SHED
SIMPLE TUBULAR GL. (ENDOMETRIAL GL.)
ZONA BASALIS
SPIRAL ART.
MYOMETRIUM
PERIMETRIUM (SEROSA)
25 - CERVIX
MUCOUS GLANDS
UPPER - SIMP. COLUMN
M
LOWER STRAT SQUAM
TO VAGINA
#85 VAGINA
MAMMARY G.
#36 RESTING
x100
#90 1ST TRIMESTER
#91 LACTATING
x40
DENSE
LOOSE
CT
INTRALOB. DUCT
INTERLOB DUCT
Fat
DUCT
ALVEOLI
DENSE
LOOSE
DUCT
ALVEOL
EPIT
MUCOSAL FOLDS W/ STRAT SQUAM
NO GLANDS
ART.
VEINS
#44 FULL TERM PLACENTA
STEM VILLUS
BV
FREE CHORIONIC VILLI
CHORIONIC PLATE
AMNION
CYTOTROPHOBLAST (LANGHANS)
CT & Hofbauer cells (PHAGOCYTES)
SYNCYTIOTROPHOBLAST
MOTHERS BLOOD IN INTERVILLOUS SPACE
Br. of UMB A & V
#47 UMBILICUS
A's
V
MUCOUS C.T.


#7 TESTIS & EPIDIDYMIS
MEDIASTINUM & DUCTULI EFFERENTIS
TUNICA ALBUGINIA - Irreg. fibrous C.T.
TEST
EPIDIDYMIS
450x
LATE
EARLY
TIBS
LEYDIG CELLS
INTERSTITIAL C.T.
LEYDIG
LYMPHATIC VEC.
MYOID NUCLEI
SPERMATOZOA
PRIMARY SPERMATOCYTE
SV
SPERMATIDS
SERTOLI CELL
SPERMATOGONIA
SEMINIFEROUS TUBULES
TUNICA ALB.
FIBER LUMEN
100x
IRREGULAR PSEUDOSTRATIFIED EP. ALTERNATING w/CUBOID
DUCTULI EFFERENTIS
P-12 leaving rete testis to EPIDIDYMIS
DUCTUS OF EPIDIDYMIS
EPIDIDYMIS - SMALLER LUMENS
STEREO-CILIA
TALL PSEUDOSTRATIFIED COLUMNAR
450x
#75 SPERM - PAPANICOLAU
POST ACROSOME
ACROSOME
MIDPIECE
IV HEAD
IMMATURE
COILED TAIL
TWIN HEAD
NORMAL 60%
FLAGELLUM
10x HEAD
x970
TAIL PIECE
#89 SEMINAL VESICLE
x1
LOW-UNIFORM PSEUDOSTRAT COLUMNAR
SAC-LIKE GLANDS - BRANCHING
FIBROUS C.T.
x100
SEPTA
x40
SMOOTH MUSCLE
+
FIBROELASTIC CAPSULE = "FIBROMUSCULAR"
SMOOTH MUSCLE
? CONCRETION
#72 PROSTATE
x1
x40
LUMEN
DENSE FIBROMUSCULAR STROMA
CONCRETION
GLAND w/ VARIABLE COLUMNAR EP
FIBROELASTIC C.T. & SM. MUSC.

ADRENAL

CHOLESTEROL = backbone of steroids – gets additions by: MITOCHONDRIAL ENZYMES & SER ENZYMES via MICROSOMES

MW = 300 DALTONS

CORTEX – mesoderm (steroidal adrenal)

MEDULLA – neuroectoderm (neural adrenal)

CORTEX

SER, MANY MITOS, STEROIDAL

RENIN/ANGIOTEN → ZONA GLOMERULOSA (not ACTH): small cells, ovoid, less lipids, spherical masses
} MINERALOCORTICOIDS (ALDOSTERONE) – AFFECT ELECTROLYTES, Na⁺ retention / K loss in KID.

ACTH → ZONA FASCICULATA: // cords, in rows of 2 cells, large lipid droplets (ccene), round mitochondria – tubular cristae
} GLUCOCORTICODS (CORTISONE / CORTISOL) glucose neogenesis; GLUCOSE MOBILIZATION in LIVER, MUSCLE (ANDROGENS – ANABOLIC ON SKELETAL MUSCLE ↑) PROTEIN CATABOLIZED, GLYCOGEN DEPOSITION IN LIVER → so glucose in periphery is burned

ACTH → ZONA RETICULATA: BRANCHING CORDS, LIPOFUCHSIN GRANULES, LESS LIPID, SMALL CELLS
} GLUCOCORTICOIDS & SEX STEROIDS (PROGESTIN / PROGESTERONE)

MEDULLA

(CREST CELLS = CHROMAFFIN CELLS) (DUE TO CATECHOLAMINE INTERACTION) NEUROTRANSMITTERS "CATECHOLAMINES"

– MEMBRANE BOUND ELECTRON DENSE GRANULES

CATECHOLAMINES: modified aa
1) EPINEPHRINE – NO METHYL GP. 80%
2) NOREPINEPHRINE – HAS METHYL GP. 20%

receptors α, β on CELL MEMBRANE

PROTEIN SYNTHESIS

ON CELL MEMBRANE: ADRENERGIC REACTION MECHAN = RECEPTORS
- METABOLISM
- CARDIAC OUTPUT / RATE, FORCE
- RELAXES SM. MUSC. OF BRONCHI
- GUT MOTILITY ↓
- PERIPHERAL VASOCONSTRICTION

DISEASES:

CUSHING'S SYNDROME – excess cortisol = protein wasting, obesity, ANDROGEN EXCESS, HYPERTENSION, EASY BRUISING

ADDISON'S DISEASE – CORTISOL / ALDOSTERONE DEFICIENCY = SKINNY, HYPOTENSION, MENTAL DISORDERS.

FEEDBACK:

HYPOTHAL. → SRIF, CRF, VASOPRESSIN, VIP
ANT. PIT → ACTH
AD. CORTEX, MEDULLA
CORTISOLS
NOREP & EP

Medical Microanatomy November 19, 1984

"SCHEMATIC DIAGRAM OF HEPATOCYTES AND PERISINUSOIDAL SPACE"

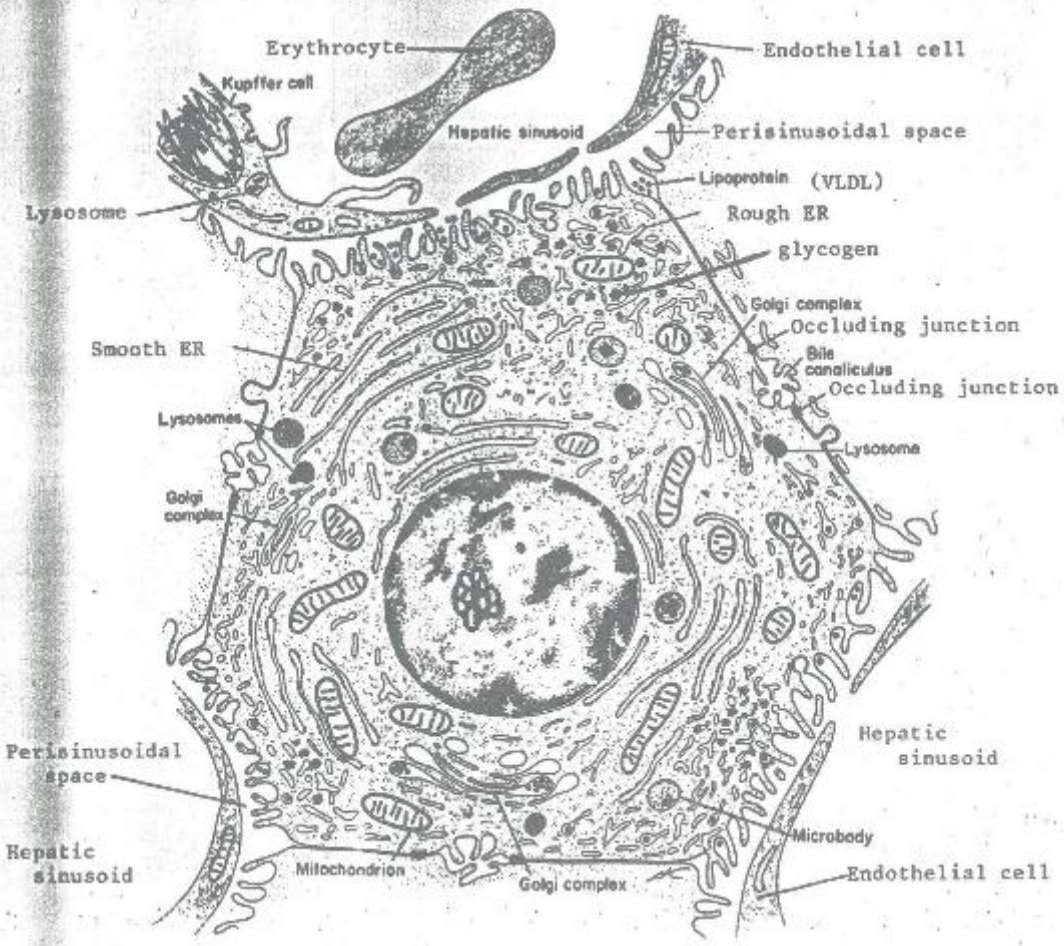
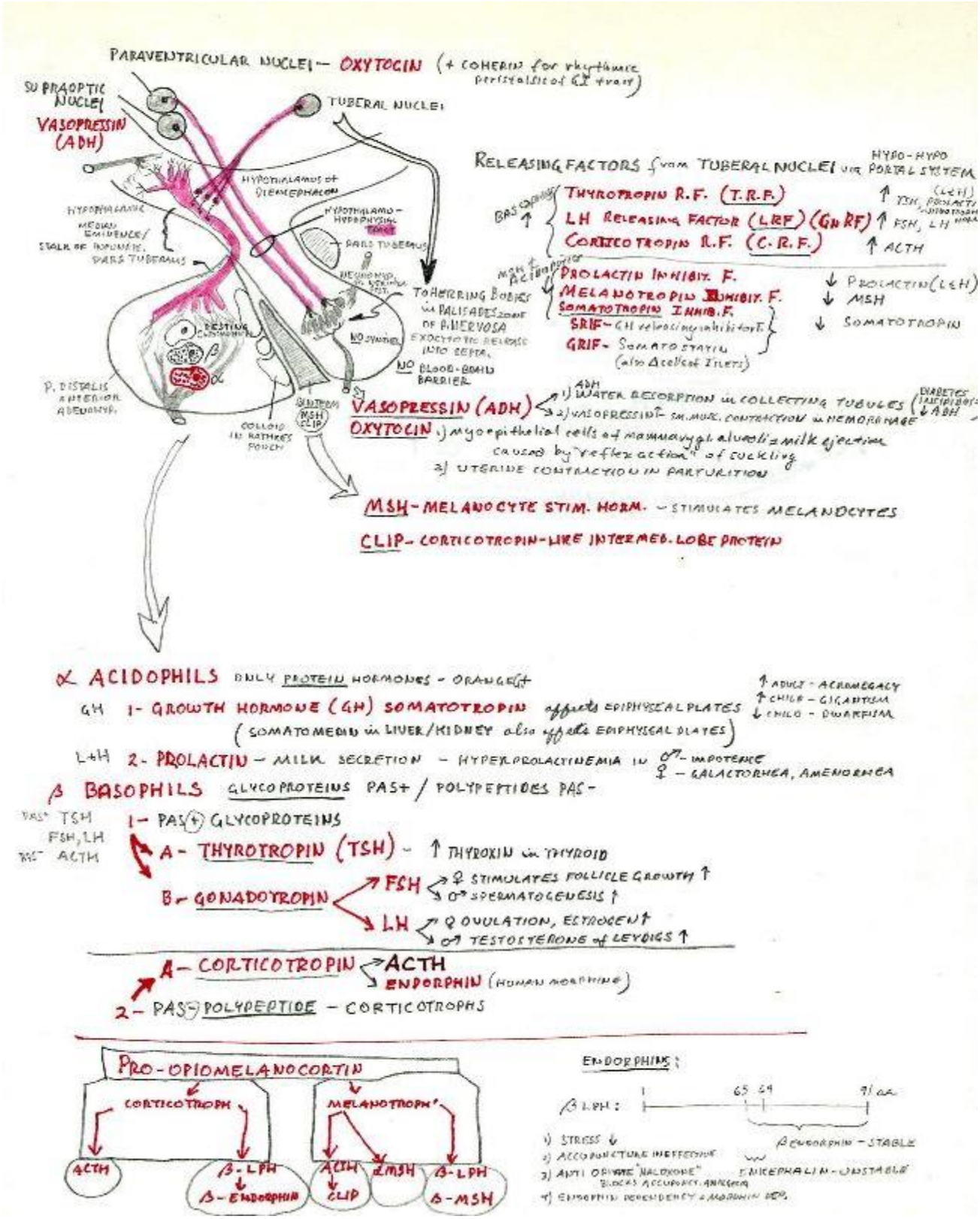
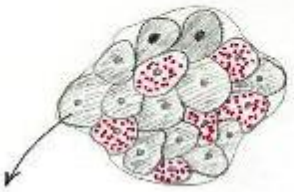


Figure 28-17 Drawing depicting the relationship of the liver cells to each other and to the sinusoids and showing the principal components of the hepatic cell as seen in electron micrographs. (Drawing by Sylvia Colard Keene.)

Modified from Bloom & Fawcett (1975)


PARAVENTRICULAR NUCLEI — OXYTOCIN (+ COHERIN for rhythmic peristaltic of GI tract)
SUPRAOPTIC NUCLEI
VASOPRESSIN (ADH)
TUBERAL NUCLEI
HYPOTHALAMUS of DIENCEPHALON
HYPOTHALAMIC MEDIAN EMINENCE / STALK OF INFUNDIB. PARS TUBERALIS
HYPOTHALAMO-HYPOPHYSIAL TRACT
PARS TUBERALIS
TO HERRING BODIES in PALISADES ZONE OF P. NERVOSA
EXOCYTOTIC RELEASE INTO CAPIL.
NO SYNAPSES
NO BLOOD-BRAIN BARRIER
P. DISTALIS & INTERMEDIA ADENOHYP.
COLLOID in RATHKE'S POUCH
RELEASING FACTORS from TUBERAL NUCLEI via HYPO-HYPO PORTAL SYSTEM
THYROTROPIN R.F. (T.R.F.) ↑ TSH, (LTH), PROLACTIN
LH RELEASING FACTOR (LRF) (GnRF) ↑ FSH, LH
CORTICOTROPIN R.F. (C.R.F.) ↑ ACTH
PROLACTIN INHIBIT. F. ↓ PROLACTIN (LTH)
MELANOTROPIN INHIBIT. F. ↓ MSH
SOMATOTROPIN INHIB. F.
SRIF - GH releasing inhibitor F. ↓ SOMATOTROPIN
GRIF - Somatostatin (also Δcellsof Islets)
VASOPRESSIN (ADH) 1) ADH WATER RESORPTION in COLLECTING TUBULES (DIABETES INSIPIDUS ↓ ADH)
2) VASOPRESSIN - SM. MUSC. CONTRACTION in HEMORRHAGE
OXYTOCIN 1) myoepithelial cells of mammary gl. alveoli = milk ejection caused by "reflex action" of suckling
2) UTERINE CONTRACTION IN PARTURITION
MSH - MELANOCYTE STIM. HORM. - STIMULATES MELANOCYTES
CLIP - CORTICOTROPIN-LIKE INTERMED. LOBE PROTEIN
α ACIDOPHILS ONLY PROTEIN HORMONES - ORANGE G+
GH 1- GROWTH HORMONE (GH) SOMATOTROPIN affects EPIPHYSEAL PLATES
(SOMATOMEDIN in LIVER/KIDNEY also affects EPIPHYSEAL PLATES)
↑ ADULT - ACROMEGALY
↑ CHILD - GIGANTISM
↓ CHILD - DWARFISM
LTH 2- PROLACTIN - MILK SECRETION - HYPERPROLACTINEMIA in ♂ - IMPOTENCE ♀ - GALACTORRHEA, AMENORRHEA
β BASOPHILS GLYCOPROTEINS PAS+ / POLYPEPTIDES PAS-
PAS+ TSH FSH, LH PAS- ACTH
1- PAS(+) GLYCOPROTEINS
A- THYROTROPIN (TSH) - ↑ THYROXIN in THYROID
B- GONADOTROPIN → FSH ♀ STIMULATES FOLLICLE GROWTH ↑ ♂ SPERMATOGENESIS ↑
→ LH ♀ OVULATION, ESTROGEN ↑ ♂ TESTOSTERONE of LEYDIGS ↑
A- CORTICOTROPIN → ACTH → ENDORPHIN (HUMAN MORPHINE)
2- PAS(-) POLYPEPTIDE - CORTICOTROPHS
PRO-OPIOMELANOCORTIN
CORTICOTROPH
MELANOTROPH
ACTH
β-LPH
β-ENDORPHIN
ACTH
CLIP
αMSH
β-LPH
β-MSH
ENDORPHINS:
β-LPH: 1 65 69 91 aa
β-ENDORPHIN - STABLE
1) STRESS ↓
2) ACCUPUNCTURE INEFFECTIVE
3) ANTI OPIATE "NALOXONE" BLOCKS ACCUPUNCT. ANALGESIA
ENCEPHALIN - UNSTABLE
4) ENDORPHIN DEPENDENCY & MORPHIN ADD.

PANCREATIC ISLETS of LANGERHANS

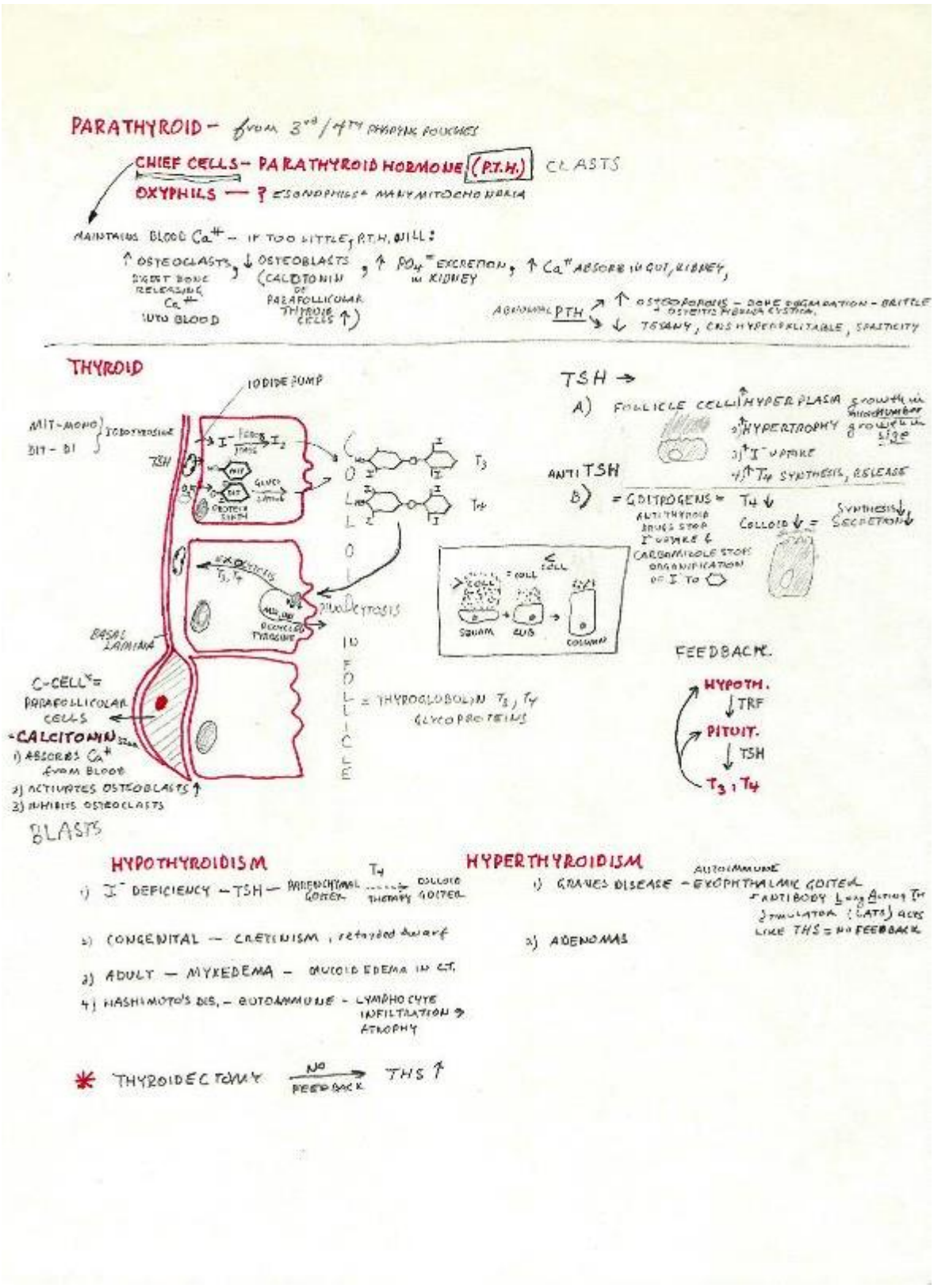


20 - 300 μm

GLUCOSE
- STIMULATES → β CELLS (70%) – INSULIN – ANABOLIC – COMPLEXED w/ ZINC – ANGULAR PROFILE of PARACRYSTALLINE CORE in HALO
  - GLUCOSE ↑ (GLUCOSE LIPIDS)
  - 51 aa (5800 MW)
  - → GLUCOSE UTILIZATION IN MUSCLE & FAT CELLS → GLYCOGENESIS, → LIPOGENESIS → PROMOTES GROWTH
- INHIBITS → α CELL (20%) – GLUCAGON – CATABOLIC – LUCENT HALO AROUND ECCENTRIC DENSE CORE
  - GLUCOSE LIPIDS ↓
  - MW 3500, 21 aa
  - – GLYCOGENOLYSIS, – GLUCONEOGENESIS, – LIPOLYSIS
- STIMULATES / INHIBITS
- Δ CELLS (5%) – SOMATOSTATIN – electron dense granules is moderate, homogeneous, larger – 14 aa (1600 MW) – INHIBIT RELEASE of GLUCAGON & INSULIN (ALSO SECRETED by HYPOTHALAMIC NEURONS (like SRIF))
- F (PP) CELLS (? %, 5 VARIETIES) small, pancreatic polypeptides, INHIBIT ACINAR CELL SECRETIONS

INSULIN DEFICIENCY = ↑ GLUCOSE = DIABETES:

1) GLUCOSE UTILIZATION ↓ IN PERIPHERAL TISSUES
2) GLUCONEOGENESIS ↑ – more stimuli
3) LIPOLYSIS ↑
4) HEPATOCYTES' ACTIVITY ↑ =
   1) GLYCOGENOLYSIS ↑ ✓
   2) GLUCONEOGENESIS ↑ ✓


PARATHYROID – from 3rd / 4th pharyngeal pouches
CHIEF CELLS – PARATHYROID HORMONE (P.T.H.)
OXYPHILS — ? ESONOPHILS* MANY MITOCHONDRIA
MAINTAINS BLOOD Ca++ – IF TOO LITTLE, P.T.H. WILL:
↑ OSTEOCLASTS, ↓ OSTEOBLASTS, ↑ PO4 EXCRETION, ↑ Ca ABSORB IN GUT, KIDNEY,
ABNORMAL PTH
THYROID
IODIDE PUMP
TSH →
A) FOLLICLE CELL HYPERPLASIA
HYPERTROPHY
↑ I UPTAKE
↑ T4 SYNTHESIS, RELEASE
ANTI TSH
B) = GOITROGENS
COLLOID
FEEDBACK
HYPOTH.
TRF
PITUIT.
TSH
T3, T4
C-CELL = PARAFOLLICULAR CELLS
CALCITONIN
1) ABSORBS Ca++ FROM BLOOD
2) ACTIVATES OSTEOBLASTS
3) INHIBITS OSTEOCLASTS
BLASTS
HYPOTHYROIDISM
1) I DEFICIENCY – TSH – PARENCHYMAL GOITER – T4 – COLLOID GOITER
2) CONGENITAL – CRETINISM, retarded dwarf
3) ADULT – MYXEDEMA – MUCOID EDEMA IN CT.
4) HASHIMOTO'S DIS. – AUTOIMMUNE – LYMPHOCYTE INFILTRATION → ATROPHY
* THYROIDECTOMY – NO FEEDBACK → THS ↑
HYPERTHYROIDISM
1) GRAVES DISEASE – AUTOIMMUNE – EXOPHTHALMIC GOITER
2) ADENOMAS