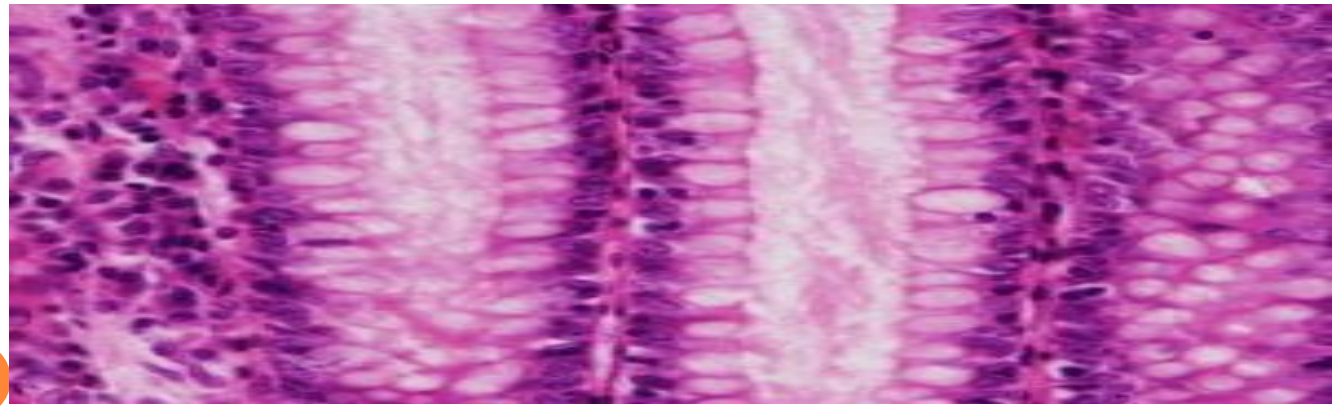
HISTOLOGY



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Ph.D. Biology

*The cell: Cells are the basic structural and functional units of all living organisms.

*Tissue : May be defined as aggregation or group of cells that are similar in composition and function ,organized to perform one or more function and form an organ such as stomach, lung, liver……etc.

TYPES OF ANIMAL TISSUES:

1-Epithelial Tissue.
2-Connective Tissue.
3-Muscle Tissue.
4-Nervous Tissue.

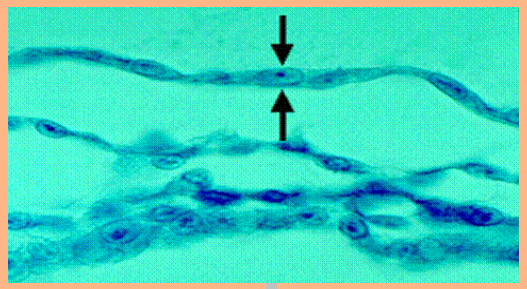
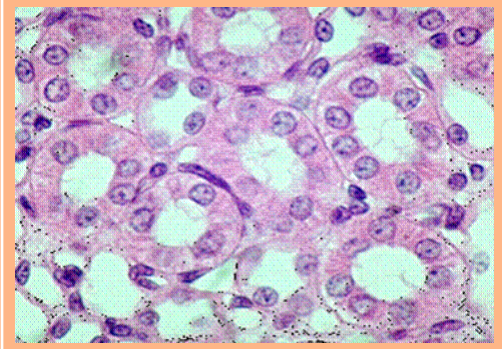
1-Epithelial tissues

- **A-Covering or lining epithelial tissues :-**

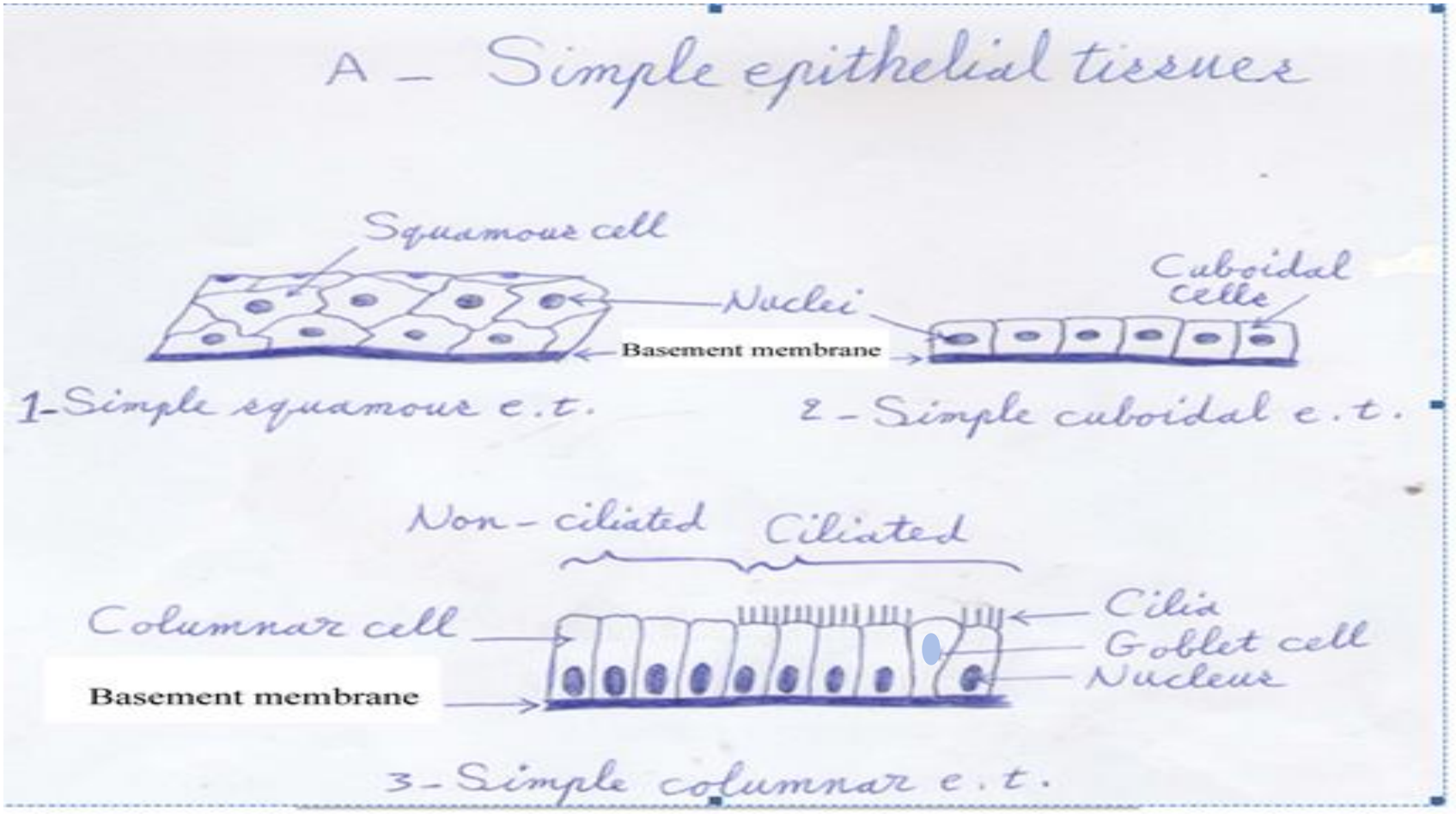
a-Simple epithelial tissue.
b-Pseudostratified epithelial tissue.
c-Stratified epithelial tissue.

- **B-Glandular epithelial tissues .**

TABLE (1):-SIMPLE EPITHELIAL TISSUES

	S.squamous e.t.	S.cuboidal e.t.	S.columnar e.t.
Type of the cells	thin, flat & irregular in outline (pavement like sheet) Simple squamous epithelial tissue C.S.  Simple squamous epithelial tissue surface view 	Stout, block like in cross section & hexagonal from surface view Simple cuboidal epithelial tissue 	**Polygonal configuration from a surface**
Function	**Transporting (filtering or exchange)**	**Secretion**	**Secretion absorption, or protection**

	S.squamous e.t.	S.cuboidal e.t.	S.columnar e.t.
Location	Lines: capillary wall, alveolar walls in the lungs, blood vessels, & peritoneum.	Pancreas, salivary, thyroid, ovaries, the capsules surrounding the lens of the eye & kidney tubules	a-ciliated: lines uterus, uterine tube , respiratory tract &small intestine Simple columnar epithelial tissue ciliated  b-nonciliated: lines stomach, Simple columnar epithelial tissue non ciliated 



Types of Simple epithelial tissues

B- Pseudostratified epithelial tissue

- It is only one, thick layer, appears as stratified epithelial tissue because the nuclei of its cells situated at different levels.
- We can see in this tissue :-

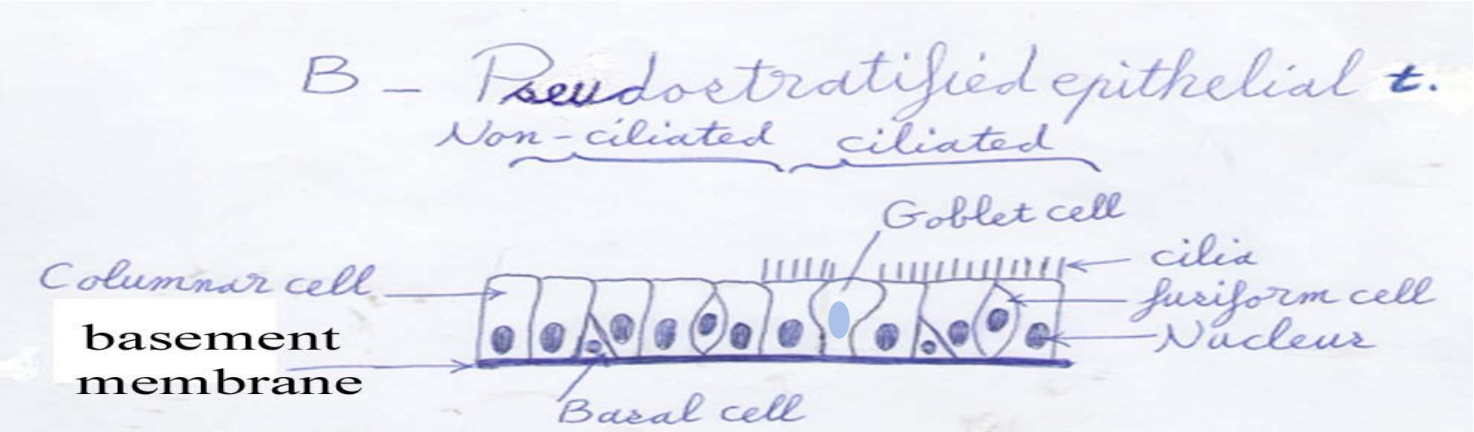
1-basal cells with more deeply placed nuclei

2-columnar cells

3-fusiform cells

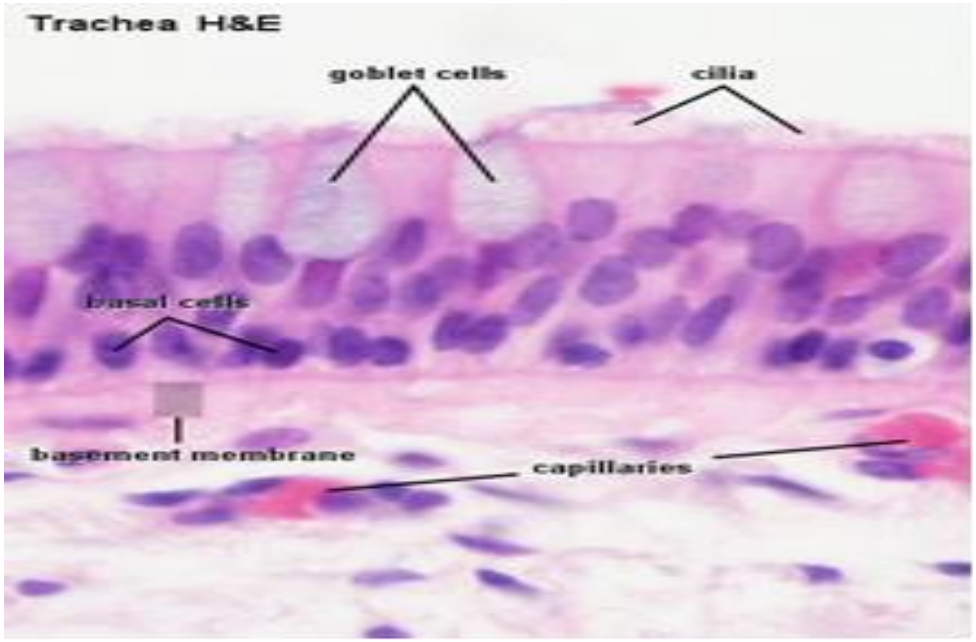
4-goblet cells.

- All cells are in contact with the basement membrane but only the columnar type extends to the free surface.



Pseudostratified epithelial tissue .

- 1-Ciliated: Ex. Trachea (has brush border) .

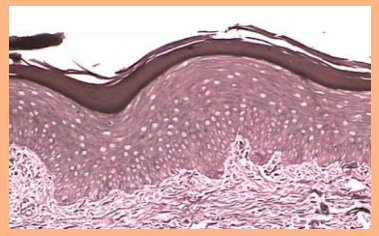
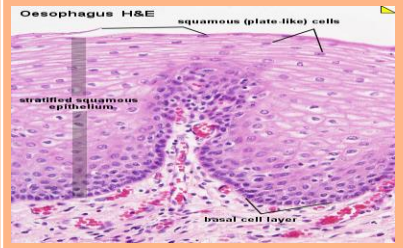
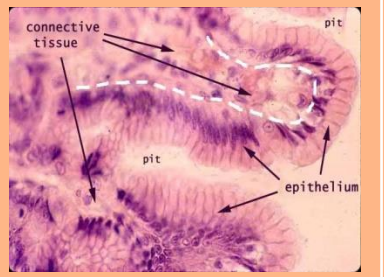
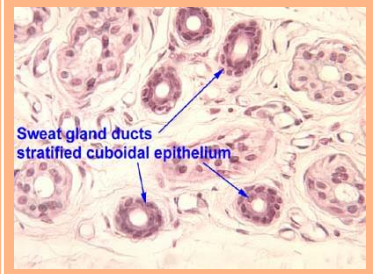


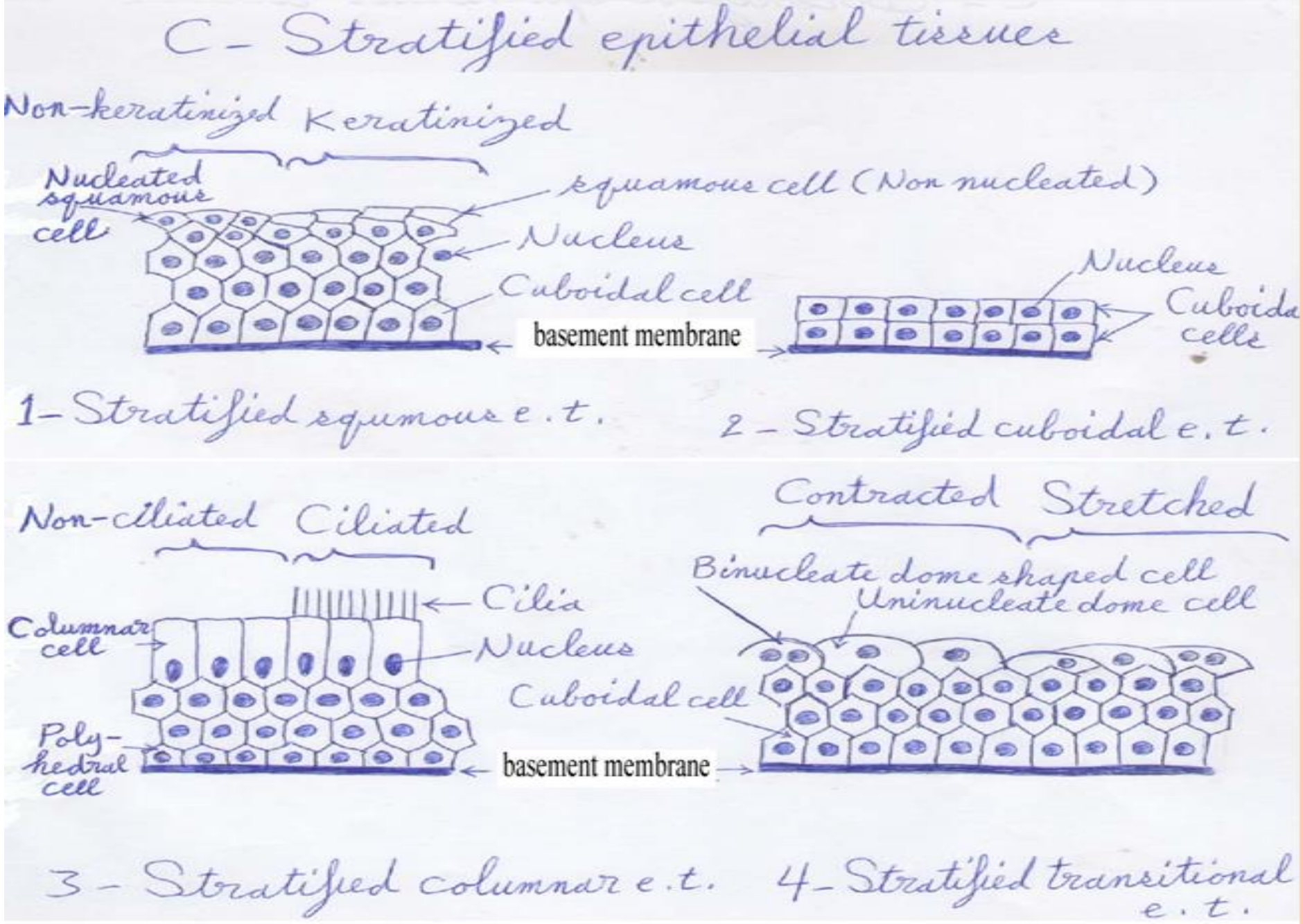
Pseudostratifeid epithelial tissue ciliated

- 2-Non-ciliated: Ex. Duct of parotid gland .

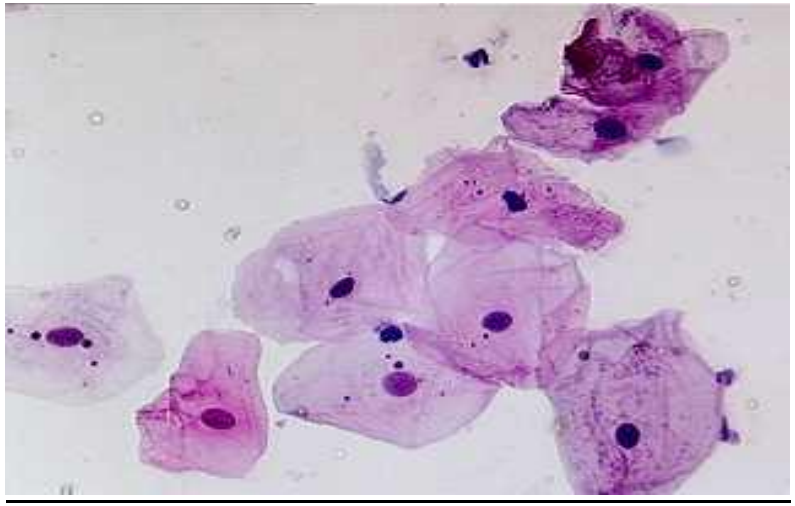
Table (2) :-Stratified epithelial tissues.

	Stratified squamous e.t.	Stratified columnar e.t.	Stratified cuboidal e.t.	Transitional e.t.
1-Type of the cells of superficial layer	Squamous cells.	Columnar cells.	Rounded cuboidal cells.	Large, rounded & dome shaped cells, which may be uninucleate or binucleate.
2-function	Protection	Protection & secretion	Secretion (sex cells production)	The epithelial distended to help in stretching the organ.

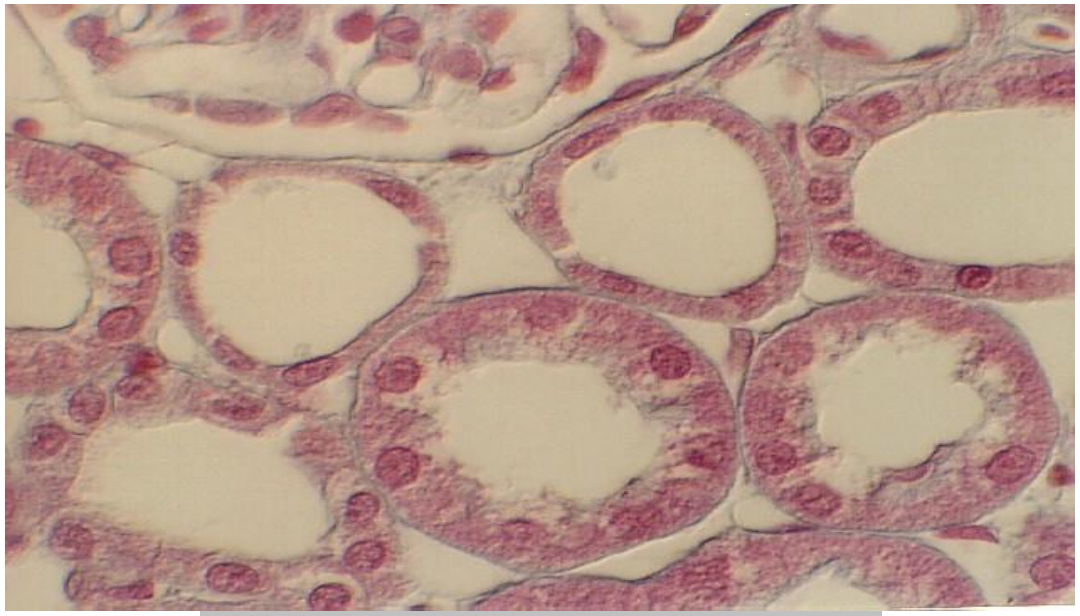
	Stratified squamous e.t.	Stratified columnar e.t.	Stratified cuboidal e.t.	Transitional e.t.
3-location	1-Keratinized Ex. epidermis (skin)  Stratified squamous epithelial tissue keratinized 2-Nonkeratinized Ex: oral cavity, esophagus & vagina  Stratified squamous epithelial tissue non keratinized	1-Non ciliated Ex:male urethra 2-Ciliated Ex:larynx  Stratified columnar epithelial tissue ciliated	Duct of ovary & testis & duct of sweat glands.  Stratified cuboidal epithelial tissue	Urinary bladder & ureters.  Transitional epithelial tissue



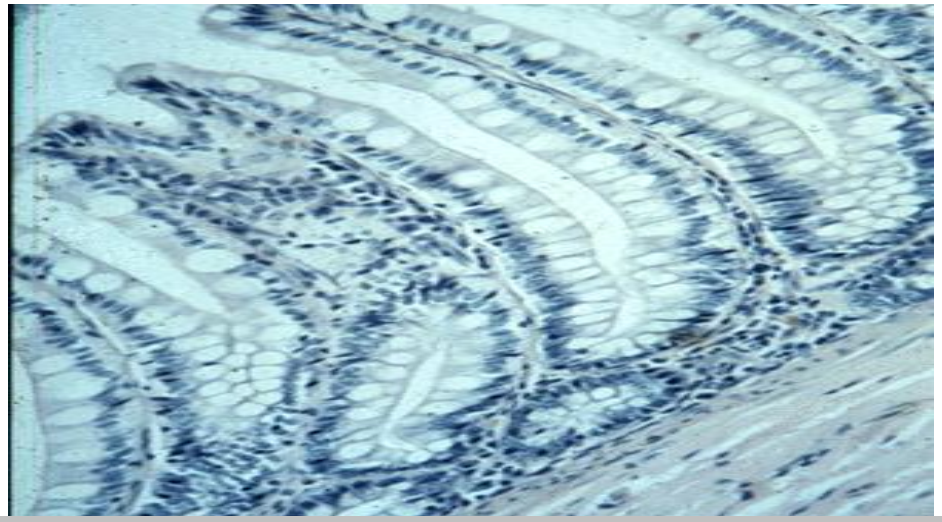
Types of stratified epithelial tissues



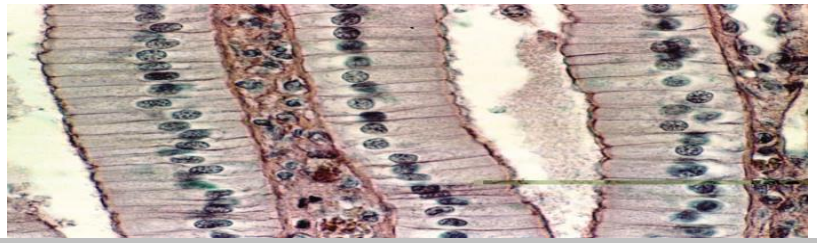
Simple squamous epithelial tissue (mouth smear)



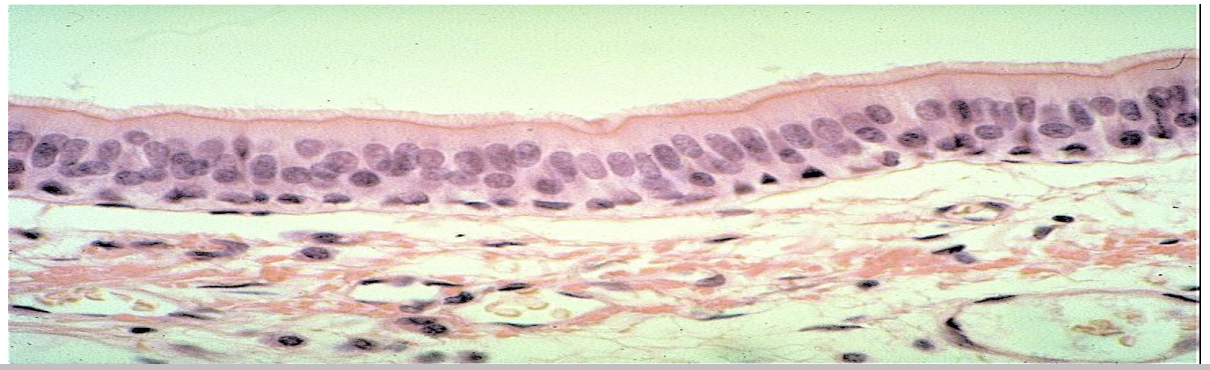
Simple cuboidal epithelial tissue



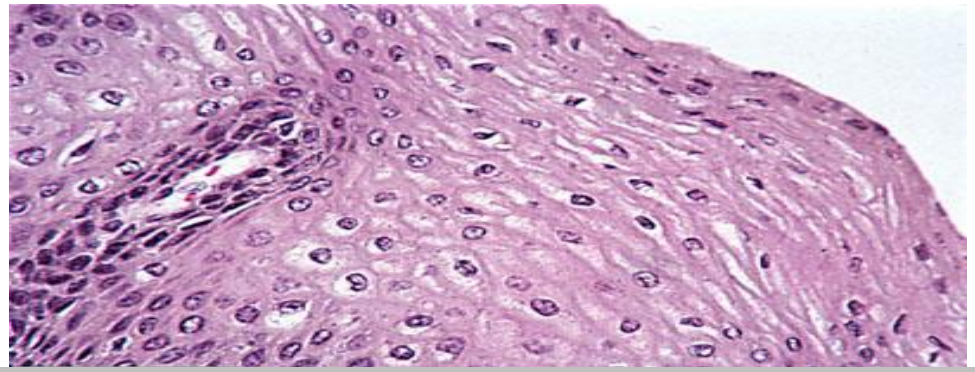
Simple columnar epithelial tissue ciliated



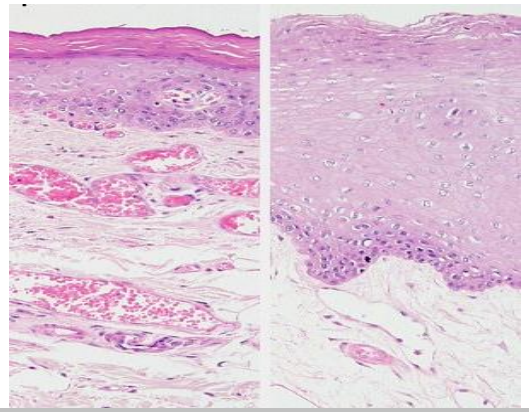
Simple columnar epithelial tissue non ciliated



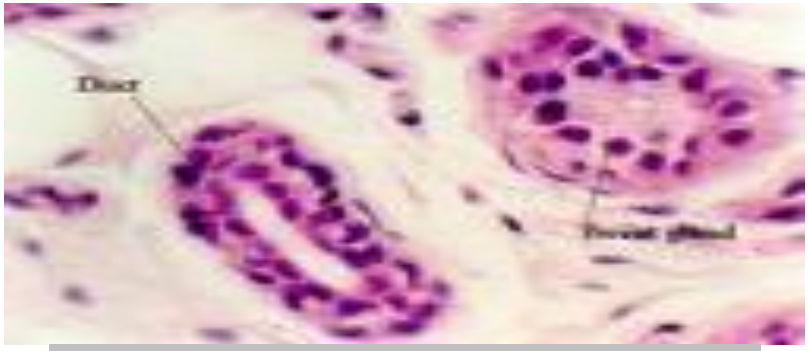
Pseudostratified columnar epithelial tissue ciliated



Stratified squamous epithelial tissue non keratinized



Stratified squamous epithelial tissue(non keratinized and keratinized)



Stratified cuboidal epithelial tissue