June 28th

- Notes on Epithelial Membranes, Tissue Repair, Developmental Aspects
- Notes on Protein Synthesis (Handout)
- Presentations
- ***Begin Genetics (text pp. 1101-1111)
- Exam 2 on Tuesday!
- Review Tissues
Bodies - The Exhibition

- Bodies - Wednesday
  - Tickets $$$
  - Parking,
  - Written Assignment,
  - Directions
Final on July 6th

- 25% Bodies Handout Questions
- 25% Notes covered after Exam 2
- 25% Tissue Practical
- 25% Questions from Presentations
Epithelial Membranes

- Cutaneous – skin
Epithelial Membranes

- **Mucous** – lines body cavities open to the exterior (e.g., digestive and respiratory tracts)
- **Serous** – moist membranes found in closed ventral body cavity
Epithelial Membranes

Figure 4.9c

(c) Serous membranes

Parietal peritoneum
Visceral peritoneum

Parietal pleura
Visceral pleura

Parietal pericardium
Visceral pericardium
Tissue Trauma

- Causes inflammation, characterized by:
  - Dilation of blood vessels
  - Increase in vessel permeability
  - Redness, heat, swelling, and pain
Tissue Repair Steps

- Organization and restored blood supply
  - The blood clot is replaced with granulation tissue
- Regeneration and fibrosis
  - Surface epithelium regenerates and the scab detaches
Fibrous tissue matures and begins to resemble the adjacent tissue.
Results in a fully regenerated epithelium with underlying scar tissue
Developmental Aspects

- Primary germ layers: ectoderm, mesoderm, and endoderm
  - Three layers of cells formed early in embryonic development
  - Specialize to form the four primary tissues
- Nerve tissue arises from ectoderm
THE RESULTS OF GASTRULATION IS THE FORMATION OF THREE CELL LAYERS KNOWN AS THE:

A. **ECTODERM** - THE OUTERMOST PRIMARY GERM LAYER IN AN ANIMAL EMBRYO. DEVELOPS INTO THE NERVOUS SYSTEM, EPIDERMIS, AND SWEAT GLANDS.

B. **MESODERM** - THE MIDDLE PRIMARY GERM LAYER IN AN ANIMAL EMBRYO. DEVELOPS INTO THE REPRODUCTIVE SYSTEM, KIDNEYS, MUSCLE, BONES, SKIN, BLOOD, AND BLOOD VESSELS.

C. **ENDODERM** - INNERMOST PRIMARY GERM LAYER IN AN ANIMAL EMBRYO. DEVELOPS INTO THE LUNGS, LIVER, THE LININGS OF THE DIGESTIVE ORGANS, AND A SOME ENDOCRINE GLANDS.

THESE THREE LAYERS ARE REFEREED TO AS **THE PRIMARY GERM LAYERS** BECAUSE ALL OF THE ORGANS AND TISSUES OF THE EMBRYO WILL BE FORMED FROM THEM.
Muscle, connective tissue, endothelium, and mesothelium arise from mesoderm

Most mucosae arise from endoderm

Epithelial tissues arise from all three germ layers
Developmental Aspects

16-day-old embryo (dorsal surface view)

**Key:**
- Blue = Ectoderm
- Red = Mesoderm
- Yellow = Endoderm

Muscle and connective tissue (mostly from mesoderm)

Nervous tissue (from ectoderm)

Epithelium