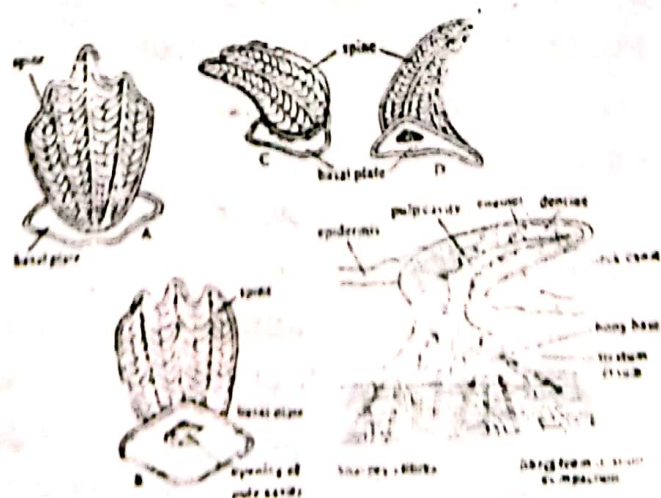


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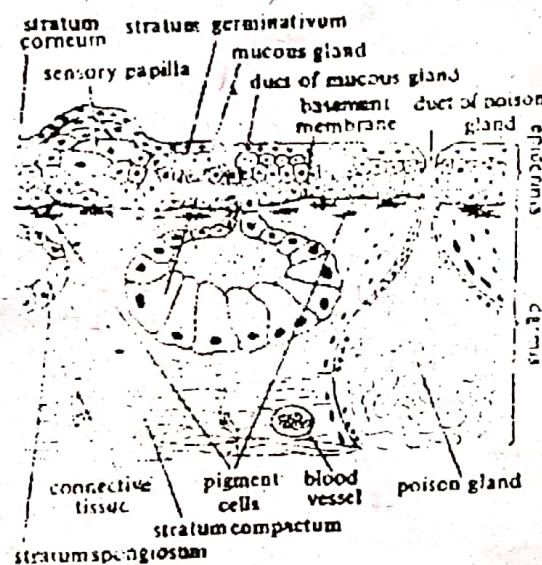
**Fishes**—The epidermis have several layers of cells, but there is no diadstratum corneum, the outermost cells are nucleated and living. The stratum malpighii is the innermost layer of epidermis. Crobolet shaped mucous gland cells found in the epidermis, as in all avuatic animals. The dermis contians connective tissue, smooth muscles, blood vessels, nerves, lymph, vessels and collagen fibres, it shows some elegree of stratification, scales are embedded on the clermis, elosmobranches have placoid scales which project above, chendrostic and floloostei often have ganoid scales, while most teleostic leptiod scales.



Scanned with CamScanner



**Amphibians**— The epidermis has several layers of cells, the outermost layer is a stratum corneum made of flattened, highly keratinized cells, such a dead layer appears first in amphibians. Below the epidermis is a thin basement membrane. The dermis is relatively thin, it is made of two layers, and upper loose stratum spongiosum and a lower dense and compact stratum compactum. There are two kinds of glands, they mucous glands and poison glands in the dermis but they are derivatives of epidermis. In the upper part of the dermis are chromatophores which have black melanophores and yellow lipophores, these produce the colour of the skin.



**Reptiles**— The integument is thick and dry, it prevents any loss of water, it has almost no glands, thus it is an adaptation to prevent evaporation of water, the only glands present are scent glands for sexual activity. The epidermis has well developed stratum corneum. The epidermis produces horny scales. Below the epidermal scales are dermal bony plates or osteoderms.

The dermis is thick and has an upper and a lower layer, the upper layer has an abundance of chromatophores in snakes and lizards.

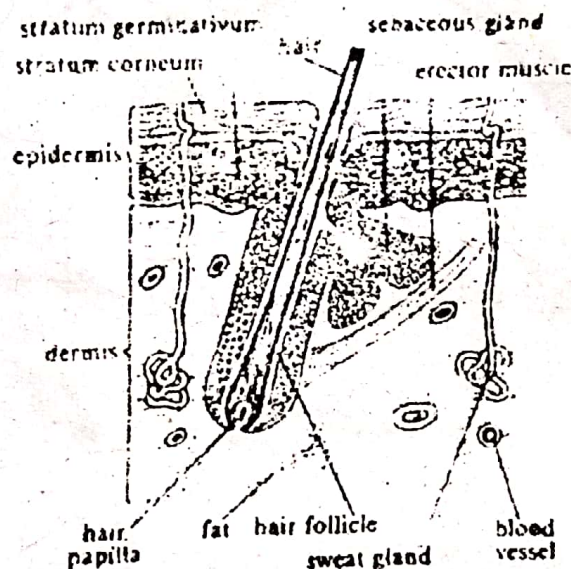
**Birds**— The integument is thin, loose, dry and devoid of glands, there is only a uropygial gland at the base of the tail. The epidermis is delicate except on the beak and feet where it is thick and forms epidermal scales. The rest of the body has a protective covering of epidermal feathers. The keratin-producing powers of the epidermis are devoted to producing



feathers and scales. The dermis is thin and interlacing connective tissues, fibres abundant muscles fibres for moving feathers, blood vessels and nerves.

The skin has no chromatophores, pigment is found only in feathers and scales.

**Mammals** – The skin is elastic and water proof, it much thicker than in other animals, especially the dermis is very thick and tough. The epidermis is thickest in mammals, it has an outer layer of stratum corneum containing keratin. Below the stratum corneum is a refractive stratum lucidum in certain regions. Below this is a stratum granulosum. Below stratum granulosum is a stratum spinosum and at the base there is a stratum germinativum. There are no mucus glands in the epidermis.



The dermis is best developed in mammals. The upper part of the dermis in contact with the epidermis is known as the papillary layer. The greater lower part the dermis is a reticular layer having elastic and collagen fibres. In both papillary and reticular layers there are blood vessels, nerves, smooth, certain glands, tactile corpuscles and connective tissue fibres extending in all direction. Below the dermis the sub cutaneous tissue has a layer of fat cells forming adipose tissue which helps to maintain body heat. In the lowest-layer of the epidermis are pigment granules but there are no pigment, bearing chromatophores in mammals.

In connection with the skin the epidermis forms hairs sudorific glands, sebaceous glands and mammary glands.