

which probably indicate a combination of the coloring matter with carbonate of lime. Hematine, or the red-colouring matter of the blood, however, does not only undergo gradual conversion into granules and crystals of hematoidine but also into black pigment, usually found in the form of granules, and very rarely in that of crystals. This transformation occurs either by the gradual solution of the walls of blood corpuscles, leaving only red or black granules, which may associate in masses and become enveloped in a cell membrane, thus constituting red or black pigment cells; or masses of blood-corpuscles fuse together and undergo similar changes to those just mentioned, and notwithstanding the blood-corpuscles appear to remain unaltered in composition, their coloring matter is no longer soluble in acetic acid. In this manner groups of blood corpuscles may become enveloped in a newly-formed cell. In a third case the blood-corpuscles may remain unchanged in their form, and the colouring matter transude and become converted into the forms of hemotoidine.\*

But although we conclude that hematine may be transformed into black pigment cells, from the simultaneous presence of these with such as are red, and are gradually undergoing the change of color, yet I am far from considering it proved that most melanotic tumours originate from effused blood, and directly from hematine, for I have frequently examined large tumors of the kind mentioned without detecting any indication from which a previous transformation of the blood could be inferred.

That red and black pigment cells originate in the manner stated, may be concluded from the fact that in the same specimen all stages may be observed from the formation of granules to the fully-developed cells; but that previously existing cells may become infiltrated with pigment granules I do not deny, although I consider such a mode of origin rare in pathological structures.

2. Free Liquid Fat—Oleine in large or small drops, frequently occurs within the investing cells of the ducts and terminal follicles of glands, as in steatorosis of the liver and kidneys. The deposit is most frequently in the hepatic cells; the cells of the tubuli urineriferi being more disposed to be

\* Dr. Lebert has communicated to me a new form of hematoidine crystals. It consists of long needles, frequently arranged with great regularity.

† I think it highly improbable under any circumstances, that a solid granule, even of the almost minuteness visible with the highest powers of the microscope, can endosmose through a cell-membrane. I know of no instance in which it has been actually observed, and in some incidental experiments on the life of the organic cell, I found the finest particles of carmine, estimated to be 1-6:00 of an inch, would not endosmose through any of the vegetable animal cells with which the substance was brought into contact.—*Trans.*