

We may remark that the functions of the skin are considered as subsidiary in some extent to the functions of the lungs in cold blooded animals, and this is also the case in a greater or less degree in the warm blooded. "L'enveloppe générale du corps, ou la *peau*, est aussi le siège d'une respiration plus ou moins active chez la plupart des animaux des classes les plus élevées, et notamment chez l'homme; mais, chez tous ces êtres, une partie déterminée de la membrane tegumentaire est plus spécialement destinée à agir sur l'air, et se modifie dans sa structure de manière à mieux remplir cette fonction."

"La partie ainsi modifiée, pour agir sur l'air, présente une texture molle, spongieuse et fine; elle reçoit une grande quantité de sang, et elle est toujours disposée de manière à offrir, sous un volume comparativement petit, une surface d'autant plus étendue que la respiration doit être plus active. On peut établir aussi, en thèse générale, que cet organe sera un instrument d'autant plus puissant que son organisation s'éloignera d'avantage de celle de l'enveloppe générale du corps, et que (toutes choses égales d'ailleurs) la respiration qui a lieu par la peau sera d'autant moins active que celle dont ces organes spéciaux sont le siège sera au contraire plus étendue."—*Mr. Milne Edwards*.

This Physiological fact will come more fully under our consideration in the subsequent part of this paper, when we enquire into the immediate cause of the extinction of life in asphyxia.

The first physiological effect observed in an animal subjected to an asphyxiating process, is, that it is rendered insensible, and incapable of being aroused by any kind of stimulus, as pinching, &c., applied to its body and extremities. And whilst this state is induced, the contractions of the heart may continue vigorous, though diminished in force and frequency. 2nd, When this state is continued, —when the asphyxia is allowed to proceed to its utmost extent without being arrested, the heart ceases to beat, and life becomes extinct.

On opening the thorax and abdomen of a cold blooded animal that has died by asphyxia, we find the right auricle, and great veins entering it much distended with blood,—shewing that the venous blood on its return from the body and extremities becomes arrested at the heart. And we also find the left auricle, which receives the blood from the lungs, equally as distended with dark venous blood as the right auricle,—shewing that after the animal is deprived of atmospheric air, the non-aerated blood continues to circulate through the lungs, and becomes arrested at the heart. The ventricle is contracted and empty.

The lungs are found congested, particularly the pulmonary veins, where they enter the left auricle, which are generally much distended with blood of a dark venous character, very different from the red fluid blood observed in the lungs of the same class of animals, when killed in the act of vigorous respiration.

In fact, the great stagnation of blood takes place at the heart, that is, at the auricles, and large veins entering the auricles. I have frequently observed after the action of the ventricle had ceased, that the *venæ cavæ* and pulmonary veins continued to contract in connection with the auricles, as if endeavouring to propel their contents forwards.

These are the phenomena observed in cold blooded animals that die by asphyxia during the highest temperature of the season. The cessation of the action