

during the last five years at the Wakefield convict prison, having been narrowly watched by him during life, and the post-mortem examination witnessed by him when dead. He says,]

From the experiments instituted by Simon, it appears that during respiration the oxygen of the atmosphere combines with the blood-corpuscles, and that the consumption of oxygen and formation of carbonic acid stand in a direct ratio with the amount of these blood-corpuscles, and with the number of respirations in a given period, hence it is obvious that the oxygen of the atmosphere is consumed in the metamorphosis of the corpuscles. And it would further appear that the amount of fibrine always varies inversely with the mass of the blood-corpuscles, or, in other words, that the more corpuscles there are, the less in quantity is the fibrine—and *vice versa*,

It appears most probable that as the blood-corpuscles principally consume oxygen during their change, it is by this process that the fibrine is produced, and that wherever an extraordinary consumption of corpuscles takes place, the quantity of fibrine in the plasma also increases. If by any means the circulation be quickened, or in other words, the mutual action between the blood and oxygen be increased, more blood corpuscles will be consumed in a given time.

Although the temperature of the body is nearly the same in all parts, in consequence of the metamorphosis of the tissues constantly going on, yet the temperature of the lungs is slightly higher than that of any other part of the system, which may be accounted for by the more energetic action of the oxygen on the mass of blood in these organs, than in any other parts of the body.

Now, Andral and Gavarret observe, that in all stages of phthisis analysis of the blood shows that the fibrine is always on the increase, and the corpuscles on the decrease, but that this increase and decrease vary proportionally with the progress of the disease. Liebig states that it must be received as an undeniable truth, that all the organic nitrogenized constituents of the body are derived from protein, when we reflect on the development of the young animal in the egg of a fowl, where, out of the albumen, feathers, claws, globules of blood, fibrine, membranes and cellular tissue, arteries and veins, are produced. Now, this albumen contains, for the quantity of nitrogen present, exactly the proportion of carbon required for the formation of these tissues.

Let us, for one moment, look into the nature of tubercle. Chemistry has thrown little light on its mode of formation. Simon states that it may be regarded as protein from which a portion of carbon and oxygen have been removed; or to speak precisely, it may be supposed to be derived from protein, which substance has lost, during the transformation, three atoms of carbon, and one of oxygen. The formula is—

	C.	H.	N.	O.
Tubercle.....	43	35	6	13
Protein	48	36	6	14

From the observations previously made, viz., that the more corpuscles there are, the less in quantity is the fibrine; and from the experiments of Andral and Gavarret, that the blood in phthisis contains more fibrine and less corpuscles; and, moreover, recollecting that the temperature is somewhat greater in the chest than in other parts of the system, probably because a more energetic action of oxygen takes place in these organs—it would appear fair to conclude from these facts, that in phthisis the combination of oxygen and carbon, in the lungs especially, is more active than in the normal state. Now we will say one word concerning the remedies employed and found most beneficial in this disease. They, for the most part, may be arranged under two heads, first—general tonics; secondly, the compounds which contain large proportions of carbon, such as cod-liver oil, naphtha, &c. &c. It cannot be doubted that the remedial efficacy of the latter class mainly consists in their readily giving up the carbon, and we have shown a great want of this element in the tubercular deposit. We may also add, that in this disease all the adipose tissues of the body are almost become emptied.

In one case of phthisis, where the blood had been analysed in a patient who had taken cod-liver oil, it was found that the fat, when isolated, smelt