

return or contraction of the pulmonary tissue, and the force of dilatation, which is antagonistic to contraction, resumes its action, and allows a new mass of air to be introduced into the lungs; this air, modified by the combustion, is again expelled, and so is perpetuated the function of Respiration, and life maintained.

7. Respiration exerts no direct action on the thoracic muscles; the Brain, centre of intellect, whose integrity is dependent on Respiration, presides over the continuance and harmony of the movements commenced by the Respiration.

The circulation is not less dependent on Respiration than the nervous system. The immediate cause of Circulation is animal heat, which is itself the product of Respiration. The limits of this thesis do not permit me to speculate on the starting point of the Circulation, and although this point of Physiology has been very little investigated, we will not touch it, but simply say that Respiration is Life; that Life rests on a tripod: I. the Nervous Centre by which it manifests its *being*; II. the circulation by which it assumes forms; and III. Digestion by which it is perpetuated: and it is as impossible to render Respiration evident without this tripod as it is to form a plane without three points; and although these four functions are intimately connected, and essentially dependent upon one another, still they have not a simultaneous commencement. Respiration precedes the three others.

8. It is true that when *breathing* begins to animate a body, the organs of the other functions already exist. But there is no difference between them and common matter, except a peculiar arrangement of their molecules relative to the mode of existence which they are required to render manifest.

For instance, let us consider the *fœtus* just separated from its mother; let us seize the interval which separates the cessation of the supply of maternal blood from the instant it begins an independent Respiration; what does it possess? Nothing. The *fœtus* lies as inert matter, as long as breathing has not established or excited the other functions. It remains yet to be proved whether or not the *soul* exists in the *fœtus intra uterum*. Philosophers, theologians, and legislators have never agreed on that point.

9. Since respiration is life manifested by a series of actions and reactions, the study of its mechanism in the two states of health and disease becomes of extreme importance in the etiology of diseases, as well as in the indications for the restoration of health.

10. A man respiring pure air, presents himself to our examination under three different conditions. I. *He respire enough*. What standard of comparison shall we adopt? A perfect state of health, that is to say, a state in which the functions of the body are executed in the most complete manner? But what are the conditions in which the system is to be found so that the effects of the respiratory process shall be recognised throughout the body? Why should a well developed constitution be in perfect harmony with the integrity of the respiratory apparatus? We insist on this point, because, out of a hundred well developed subjects, taken at random, there are perhaps not five entirely alike. Hence the necessity of determining the exact measure of respiratory capacity appertaining exclusively to each constitution; hence also the sure indications for maintaining the integrity of health. Voluminous works have