learn and observe the number of respirations a minute, and also their character—short, as in thoracic; slow and deep, as in abdominal breathing; or *hurried*, as in fever; and these symptoms may not be accompanied by pain unless the lungs or pleura are the seat of the disease. Respiration, like the pulse, is influenced by a number of circumstances, age and sex being the most noticeable. The number of respirations in a minute is greater in *early* infantile life—as we shall point out to you in that division of our subject—than at any other period of life. They are also more frequent in women than in men. Exercise and the temperature of the air also affect respiration.

The most remarkable fact about respiration is the singular ratio that the respirations bear to the number of the heart's beats in a given period of time (say one minute), which is put down in text books as one to four, and is maintained in health and disease. Taking an average pulse rate of from sixty-eight to seventy-five in women, and considering our patients are mostly in the prime of life, we get from sixteen to eighteen respirations per minute as a fair basis for clinical observation, and a fact you must bear in mind. Position of the body affects the rate of the respirations, and whilst our patients preserve the recumbent position we must expect the rate to be slower on that account. In nervous hysterical women we get a hurried respiration without any other untoward symptoms, unless in cases where there are mental troubles to be feared.

Chemical respiration differs materially from the mechanical process we have just touched upon. The first point to claim our attention is the remarkable difference that exists between the air that is drawn into the lungs and the air that is expelled; the former contains life-giving oxygen, the latter the death-dealing carbonic acid gas. The air we exhale (commonly called the breath) is hotter than the air we breathe, and this increase of *heat* is due to the interchange of gases taking place in the air cells of the lungs, passed off from the lungs as vapour, which is condensed into water when it reaches the outer air, as we can see in cold weather, or by breathing on a looking-glass. Chemical respiration has a twofold task assigned to it—to maintain the animal heat, and to "burn up" tissue waste; for Nature, like a careful housewife, knows that the best place for "litters" is behind the fire.

Whence cometh this waste material? To answer this question I must now turn your attention as briefly as possible to the capillary or systemic circulation, and show you how intimately it is connected with the "pulse" and "temperature."

In a recent paper I pointed out that when the left ventricle of the heart had forced the arterial blood into the aorta, the distribution of it was left to the arterial system, ending in those minute hair-like terminations, called the arterial capillaries. The arterial blood nourishes and renovates every part and organ of the body, but it cannot renovate itself, and it passes on the task to the nervous system, which, as you are aware, conveys the venous blood *to* the right side of the heart, when it is propelled by the *right* ventricle to the lungs for aeration and purification, and thence passing to the left ventricle to be pumped, as it were, into the aorta. The circuit of the blood from one side of the heart to the other is called the pulmonary circulation, and under normal conditions the number of the heart's beats required to effect it are from sixty-eight to seventy-five, taking these as the average rate for both sexes. How is the air brought to the blood? It is obvious the blood cannot get to the air. By the respiratory process. Inspiration draws the air *into* the lung cells, expiration expels it from them. The number of respirations required to aerate the blood is from sixteen to eighteen in a minute, and the period required for a complete circulation about the same.

Remember there are not *two* bloods in the body, but only one, having different conditions, different names, and a singular physical difference in colour, the venous being purple, the arterial scarlet. The quantity of atmospheric air required to support respiration in health is from four to ten cubic feet per minute, but for lying-in women we require double that quantity to secure thorough aërial purification; hence the necessity for ventilating the room.

I pointed out to you in a previous paper what clinical deduction can deduce from the meagre outline of the circulatory system, as they bear upon the important points of "pulse," "temperature" and respiration. My readers must bear in mind that my remarks will apply to our patients, and we will assume the case before us to be post-partum inflammation of the uterus, due to *traumatic* causes (and I include *chills* as one of them) as distinct from *septic*, of which we may say more further on. We shall see that just as the lightest breath of wind will deflect the arrow of the weather vane from any given point of the compass, our barometer marks the slightest alteration in atmospheric pressure, and our thermometer the least rise in the temperature of the air, so in the living, sensitive system of ours it is from the capillary circulation we receive the *first* warning of the coming storm.

(To be continued.)

Duty gives neither kisses or caresses.

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