

The Nursing of Heart Diseases.

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CHAPTER I.

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The Heart is composed of muscular tissue, layers of which pass in various directions round the organ both horizontally and vertically; by the contraction of which the cavities of the heart are closed, and by the relaxation of which the cavities again open. This may be illustrated by placing an india-rubber band round the fingers. If these are stretched apart, a space is made between the fingers, while the contraction of the band draws the fingers together and obliterates that space. The Heart consists of two distinct and separate halves, shut off from each other by a strong muscular wall or septum. Each half consists of two chambers, of which the upper is called the *Auricle* and the lower the *Ventricle*. According to the side of the heart upon which they are placed these are termed the Right or Left Auricle, and the Right or the Left Ventricle. Between each auricle and ventricle there is an opening, closed, so to speak, by curtains, of the most wonderful description, being composed of delicate membrane and so arranged that, on each side, they open into the ventricle, but are prevented from opening backwards into the auricle by means of a number of thick or thin cords attached to the wall of the ventricle, and along the free edges of these membranous curtains. The curtains are called *Valves*; those on the right side being termed the Tricuspid valves because they are divided into three "cusps" or triangular segments, united around the edge of the opening, but free from each other at the sides and apex. When the curtains fall together, however, their edges in health join so accurately that nothing can pass backwards through them, that is to say, from the ventricle to the auricle. In other words, the blood flowing through the heart passes easily from the auricle down into the ventricle and distends the chamber, then the muscles of the ventricle, contracting, force the blood back against the valves, which are thus pressed up close together, and prevent the return of the fluid into the auricle from which it has just come, thus compelling the blood to flow through an opening in the side of the heart termed an *Artery*. The great importance of the valves in health can, therefore, be easily understood; and the large part

which they play in diseases of the heart will be apparent hereafter.

The arterial opening on the Right side of the heart is known as the *Pulmonary Artery*, that upon the left side of the organ as the *Aorta*; while the valves between the Left auricle and ventricle, which are two in number, and bear a fancied resemblance to a bishop's mitre, are known as the *Mitral* valves. It will be well, before we go further, to trace the course of the Circulation of the Blood; because the necessity of understanding this will be frequently exemplified during our consideration of the various diseases of the heart.

The Right Ventricle contracting, closes its cavity; and the blood which it contained, being prevented, as we have already seen, by the Tricuspid valves from flowing back into the auricle, is squeezed out into the Pulmonary Artery—a tube, the walls of which are largely composed of muscular fibres, and each part of which, first dilating with the pressure of the blood forced into it, and then contracting upon its contents, forces the blood steadily onwards throughout its whole length; this, by the way, occurring in every part of every artery in the body. The Pulmonary Artery divides at once into two parts, one of which enters the Right, and the other the Left, Lung; each, dividing again and again into smaller channels, then pass through every part of the lung tissue, by which time the canals have become so small as to be almost microscopic in size, and are then known as *Capillaries*—so called from their assumed resemblance to hairs. Then these tiny capillaries unite together again and as they do so become gradually larger, being then known as *Veins*, which in their turn unite to form the Right and Left Pulmonary Veins, which, joining together outside the heart, pour their contents into the Left Auricle. As on the other side of the heart, the blood from the Auricle flows into the Left Ventricle, and then by the contraction of the latter chamber is pumped out into the Aorta, from which it passes into the smaller arteries supplying the head, limbs, and trunk of the body; each artery in turn subdividing, and finally being merged into capillaries, and so into veins, which, passing back towards the chest, become larger and larger, and finally unite in one large vessel, which pours its contents into the Right Auricle, which contracting, forces it into the Right Ventricle, and so once more the blood proceeds on its circulation through the system.

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