

**Lectures on Elementary Physiology
in relation to Medical Nursing.**

BY BEDFORD FENWICK, M.D.

Physician to The Hospital for Women, Soho Square.

LECTURE I.

(Continued from page 185.)

THIS is a most important fact, and one which has only been really understood within the last few years, and the lessons for Nurses therefore to remember are that patients suffering from dilatation of the heart must be kept as quiet and free from exertion as possible. In extreme cases they should not be allowed to do anything for themselves, because sometimes the mere exertion of getting out of bed will cause an attack of syncope which may be fatal. In such cases, therefore, the Nurse should always ask for definite orders from the doctor as to the exertion her patient may be allowed to take.

When the blood flows over a healthy valve no sound whatever is produced, but when the edges of the valve become thick and rough, as has been described, then just as shallow water rattles over the stones in a brook, so the passage of the blood over these valves causes a murmuring sound which can be easily heard by the ear of the doctor placed on the chest of the patient, or more usually through the medium of the stethoscope. The muscular contraction of the heart and the tension of the arterial valves as the blood is pressed up against them form what are known as the **TWO SOUNDS OF THE HEART**. If you listen with the ear or stethoscope placed on the chest of a healthy person, two inches below and one inch to the inner side of the left nipple, you will thus hear two distinct sounds regularly following each other, and sounding somewhat like the words "lub" "dup." Then there is a momentary pause, and then the sounds recur—"lub" "dup," and the pause. The first sound is caused by, and therefore occurs with, the contraction of the ventricles, and the expulsion of its blood into the arteries. Then the rebound of blood sharply closing the semi-lunar valves causes the second sound. Then during the pause the blood is flowing from the auricles into the ventricles; and then the cycle recurs. From this, you will understand that when the mitral or tricuspid valves are diseased, and so permit the blood to flow back into the auricle, the first sound of the heart, instead of being clear, is replaced by a soft blowing sound, and as this is coincident with the contraction or **SYSTOLE** of the ventricle, it is known as a **SYSTOLIC MURMUR** or *bruit*. Or again, when the semi-lunar valves which, as we have

seen, guard the openings from the ventricles into the arteries, are diseased, the sharp first sound is again replaced by the systolic *bruit*. A systolic murmur, then, either means incompetency of the valves between the auricle and the ventricle, or some contraction of the arterial valves.

When the blood flows from the auricles over thickened and contracted mitral or tricuspid valves, it does so of course during the "pause," that is to say, before the contraction of the ventricle takes place, and therefore, the murmur which is produced is termed a **PRESYSTOLIC** murmur, or *bruit* antecedent to the systole of the heart. So again, the murmur produced by blood flowing back from the arteries through roughened and incompetent semi-lunar valves into either ventricle takes the place of the second or "diastolic" sound of the heart, and this is therefore called a **DIASTOLIC** murmur. It therefore requires considerable skill and experience for the doctor to decide in any given patient precisely what disease of the valve is present, and which valve is diseased. Formerly, all the interest centred in the discovery of the particular valve which was affected, and when valvular mischief was discovered it was supposed to be the death knell of the patient, and indeed such patients were in former days always regarded as doomed.

Quite recently, the writer saw a gentleman who was discovered to have a defective mitral valve fifty years ago, and whose parents were then solemnly warned to prepare for his speedy dissolution. He has a distinct murmur to-day, but his heart's muscle is so strong that the valvular disease causes no marked disturbance to the circulation, and he is in excellent health.

So it is known now, as we have already said, that it is the weakened condition of the heart walls, which is directly caused by the disturbance in the circulation, and not merely the disease of the valvular tissue, which involves the danger to life.

The occurrence of inflammatory disease of the valves may be said to be due to three chief causes. It may occur during, or follow after, an attack of such fevers as Scarlet fever, or Acute Rheumatism, or a severe strain or accident, or it may be due to a gradual thickening of the tissues of the arteries and valves which is found in some forms of Gout, of Chronic Rheumatism, or of Kidney disease. In the illness known as Rheumatic Fever, or Acute Rheumatism, the inflammation of the valves to which is given the name of *Endocarditis*, or inflammation of the lining membrane of the heart, is very common. The free edge of the valves chiefly suffer and the mitral valves are the most commonly affected. When the valve becomes inflamed, a

[previous page](#)

[next page](#)