

which the valves are permitted to close the opening thoroughly. Now, in what class of hearts would we expect to find this derangement? I answer, in those that have been for some time in a state of aortic obstruction. In aortic obstruction the left ventricle has to make greater efforts to propel the blood onwards. But while doing this, it increases in muscular power by an increase in muscular substance. As the heart makes stronger efforts to send the blood onwards, there is a correspondingly greater effort at regurgitation, or a forcing of the mitral valves into the auricle. To counteract this the columnæ carneæ enlarge in size; and finally reach such power, that, by their action, the valves are not only not prevented turning in to the auricle, but really prevented from perfectly closing the mitral opening.

In the other form of regurgitation the valves are also quite normal; and would answer well to the water test, and not allow a single drop to flow back towards the auricle. In this class, it is not aortic obstruction, but aortic regurgitation that is the matter. When the ventricle contracts, the blood is driven on; when it dilates, let us see what takes place. The blood flows into the ventricle from both the auricle and the aorta; and in this way the ventricle is full before it is time for the auricle to contract. When the auricle does contract, it has only the effect of still more distending the ventricle, without at the same time emptying itself. At this juncture the ventricle is too full, the auricle is contracted on the remainder of its blood, and there is a column of blood lying in the auriculo-ventricular opening. Now the ventricle contracts, and the auricle begins to dilate; but, from what has been said above, the valves cannot completely close until there is a greater or less amount of regurgitation. As soon as this has taken place, the mitral valves close the opening thoroughly, the semi-lunar valves are forced, and the blood makes its way into the aorta.

In the case of aortic regurgitation, when there is a mitral one as well, and yet no disease of the valves, the murmur is purely mechanical. When there is aortic obstruction, the mitral murmur is not produced in this mechanical way; but by the hypertrophy of the muscular structure of the parts concerned. Prof. Drosche, after paying much attention to heart murmurs, expressed himself thus: "I have seen so many cases of abnormal mitral sounds during life, where no defect could be found after death, that I must confess my belief is strong in a kind of functional regurgitant murmur, rather than that it must always depend upon valvular defect." I have met with one example of very long columnæ carneæ; and if these contracted during life to the same proportionate extent as those of normal length, then the valves must have been drawn back to an amount that would admit of a rather free backward flow of blood. In the uncontracted state of these columns, the valves closed completely, and did not permit the escape of a single drop of water.

#### ERYSIPELAS TREATED BY BARWELL'S METHOD.

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Shortly after Mr. Barwell's report of five cases of erysipelas treated by the application of white paint, the plan was put in practice by the writer, in half a dozen cases, with the following result:—

Case I.—Female of middle age. Erysipelas, affecting right leg, in the neighbourhood of knee. Recovery, twenty-four hours after the application of the paint.

Case II.—Male, between 20 and 30. Erysipelas of leg. Recovery, in three or four days after operation.

Case III.—Female, aged 18. Erysipelas of face and scalp; ran its usual course, unaffected by treatment. Recovery, in ten days, with considerable loss of hair. Relapse in a week or ten days, confined to face. (The relapse was controlled in three