

A third class of super-normal rhythms are those which are secondary to broken compensation, and in which the heart muscle is still moderately healthy and the beat of the heart, while fast, is regular. In this class of case digitalis is efficient in reducing the rhythm to normal. The main treatment, however, would be rest until compensation is restored and then carefully graduated heart exercise to aid in muscular hypertrophy. This heart exercise may be obtained by carefully graduated baths with their reflex effects upon the work of the heart (as conducted by Schott in Mannheim), or by mild walking exercises (Oertel), or by Swedish movements. In the later stage of these cases the beat frequently becomes irregular and the muscle fibre has suffered more severe pathological changes and digitalis is no longer of value. The case might then be counted as one of the fifth class. When one administers digitalis to cases in which the rhythm is fast but regular, any irregularity occurring during its administration should lead to cessation of its administration.

A fourth class of cases are those in which the cells about the mouths of the great veins have become relatively less irritable and those in the bundle of His relatively more irritable. The heart-beat arises in the bundle of His or its source in the specialized fibres of the atrio-ventricular node. The beat spreads from its point of origin in the node to both auricle and ventricle simultaneously: both chambers beat in unison. In many of these cases, which MacKenzie¹ terms cases of nodal rhythm, the action of digitalis is almost "miraculous." I may point out that in these cases of nodal rhythm the action of the heart is often irregular, nor does digitalis serve to restore it to a normal rhythm, but owing to its beneficial action in slowing the heart and in improving tone and contractility may enable the heart to regain its compensation. The pathological changes in this class of cases consist in degeneration of muscle fibres due to overwork and to localized scleroses, but the main mass of the muscle fibres are still healthy.

In the fifth class of cases the muscle cells are very generally diseased. The pathological changes usually found consist in marked arteriosclerotic changes in the coronary arteries and fibrous and fatty changes in the muscle cells. (The Sclerotic Heart cases of MacKenzie.) Clinical symptoms consist in irregularity and lack of response to sudden exertion. In these cases, as a rule, slowing of the heart cannot be achieved with digitalis, though it seems that there is little danger in its administration with caution if heart-block has not already occurred. The treatment needed seems to be largely rest and the doing away with nervous strain, the banish-