

sent under consideration. The facts unfolded by him formed, ten years afterwards, the subject of an interesting study by Stanley Kent, who, devoting attention more exclusively to the connecting link between the auricle and ventricle, showed the path by which impulses passed from one to the other. His, in the same year, published his anatomical researches by which he still further advanced the subject, and with these investigations the first chapter of the anatomical explanation terminates. Eight years afterwards Ewald returned to the link binding auricle and ventricle in the frog, and shortly afterwards Retzer, Bräunig, and Humblet extended the observations. These workers paved the way for the elaborate investigations of Tawara, who carried out a most valuable research, fully demonstrating the origin and ramifications of the structures by which the anatomical gaps separating the different portions of the heart are bridged over. Keith has more recently, in a manner as lucid as it is luminous, further extended these remarkable investigations.

The researches of Tawara have shown that the auriculo-ventricular bundle is only a part of a great system; it descends on the interventricular septum, ramifies throughout every part of the ventricular walls and is continuous with the system of Purkinje fibres. The papillary muscles are brought into especial relation with the system, and this very interesting point throws a vivid light upon the important observations made on the functions of these structures by Roy and Adami, to which the latter has again returned more recently.

Keith has illuminated the subject, as he usually does, by the brilliance of imagination as well as the result of labour. He described the musculature of the sinus as being freely continuous with that of the auricular canal and auricular appendix. In searching for a clearly differentiated system of fibres within the sinus, which might serve as a basis for the inception of the cardiac rhythm, he discovered a peculiar structure surrounding the arterial circle at the junction of the sinus and the auricle. The structure closely resembles that of the auriculo-ventricular bundle, consisting of an intimate network of pale, undifferentiated fibres with well marked nuclei. This structure contains numerous nerve cells and nerve fibres. Although the mass is undoubtedly muscular in its main structure, yet the nerves in the neighbourhood of the vena cava enter into very intimate connexion with it, so that Keith feels justified in stating that a peculiar neuromuscular junction occurs at this point.

As assisting us in understanding the functions of the heart, the researches of MacCallum on the muscular connexions of the two ventricles, of Keith upon the special anatomy of the heart, of Porter on the