an exposed heart it is extremely easy to produce a murmur by very light pressure on the conus anteriosus with the bell of the stethoscope. Such pressure resulted in a thrill and murmur beyond this point. May it not be, then, that the pressure exerted by the chest wall against the pulsating conus anteriosus may often be sufficient to result in such a murmur? With inspiration the interposition of a cushion of air-containing lung equalizes the pressure, removes the cause, and the murmur ceases. With age and increased volume of the lungs, the murmur is less frequent. This hypothesis, while unproven, has seemed to me that which is most applicable to the condition. Janeway,‡ in a discussion of our paper, calls attention to the frequency of expiratory systolic murmurs at the base of the heart, and suggests that they are due to pressure.

The cause of the *cardio-respiratory, inspiratory systolic murmurs* is obvious enough. The reinforcement of the inspiratory murmur with each systole is due to the accentuation of inspiration during the ventricular contractions, and the sound dependent on this ought to be more marked, the more forcible and abrupt the contraction and the larger the quantity of blood expelled. As has been said, exercise may and often does exaggerate this phenomenon markedly.

As to the cause of the *systolic apical murmurs* heard in the recumbent and left lateral posture, the writer can only express an opinion quite in agreement with that of Henschen,* but unsupported by experimental evidence. I have always regarded these murmurs as indicative of a true mitral insufficiency because of the location in which they are heard, because of their occasional transmission outward, and because of the general similarity of the sound to that heard in true mitral insufficiency. Such a mitral insufficiency, dependent on position alone, if it be a mitral insufficiency, is, however, a perfectly normal phenomenon.

Whatever the cause of these phenomena, it seems to me that these three forms of murmurs:

(a) The basic systolic murmurs increased on expiration;

(b) The apex systolic murmurs limited to the recumbent posture;

(c) The cardio-respiratory, inspiratory systolic murmurs;

form three clinical pictures which are fairly distinct, and apparently of no pathological significance.

‡Tr. Ass. Am. Phys., Phila., 1906, xxi., 61.

*Uber systolische functionelle Herzgeräusche. C. M. xvi. Cong. internat. de méd. Budapest, 1909, vi., med. interne, fasc. I., 221.