

boughs the emotional nature is moved irrespectively of any ideas that may be excited; so at the bedside of a sick child its moans and cries of pain affect us quite out of proportion to and irrespectively of the value our mind may set upon them, for even if we know the child is not dangerously ill, nor suffering very much, still we cannot prevent, as is said in common language, its cries going to our heart,—and they do go to the heart, or at least to the centre of the emotional nature, direct. So a cry of pain or distress heard suddenly awakens a corresponding emotion in the hearer before any thought is aroused.

The types of these two classes of sound are, on the one hand spoken language, and on the other hand music. The former we know appeals directly to the intellect and does or does not arouse emotion, according as the thought awakened is or is not associated with an emotional state. The latter, we also know, appeals directly to the emotions and only awakens thought secondarily if it does so at all. Now does that class of sounds which appeals directly to the moral nature possess any quality which the other class does not possess which would make us think that it rather than the latter acts upon the sympathetic? It has one such quality, namely: rhythm. All music is rhythmic, and all language which appeals directly to the feelings, that is to say all poetry, is also rhythmic. Now rhythm is one of the leading qualities of the functions of the great sympathetic. All motions governed by it are rhythmic, the heart's motion, and the motions of the intestinal canal, the contractions of the uterus in labor. I myself have no doubt that the duration of pregnancy, the determining cause of which has puzzled the world so much, as well as the periodic recurrence of ovulation are both due to the same cause, namely: the rhythm, or periodicity of function of the great sympathetic system. Doubtless the chief advantage of regularity of time in taking meals is due to the fact that the gastric and salivary glands and other organs concerned in digestion, being governed by the sympathetic, their functions are best performed rhythmically. Comparing the twenty-four hours to a bar of music the three meals and sleep are four notes which make up the bar and they require to be struck in true time and with the same intensity day by day to keep the music of the system true.

(B) The only thing that remains for me to do to complete this very short and imperfect sketch of a most important and much neglected subject, is to consider briefly the expression of the emotions to see if we can determine from which nervous system these phenomena proceed. As we cannot pretend to discuss the whole of this branch of the inquiry I shall limit the few remarks I have to make to the expression of (1) joy, (2) grief, (3) hate, (4) fear, (5) and to the expression of, or rather the effect of, long continued excessive passion of any kind.

(1) If joy is at all marked in degree it alters the heart's action—if excessive and sudden it arrests it momentarily, if more moderate in degree it makes it more frequent and stronger; excessive joy causes pallor for a short time and then slight flushing, moderate joy heightens the complexion. If joy is at all extreme it excites hecymation in persons of mobile nervous organization. Sudden and great joy destroys the appetite, apparently by checking the salivary and gastric secretions—moderate joy stimulates the appetite doubtless by exciting the secretions which assist in digestion. Now all the above are disturbances of functions which are controlled by the sympathetic—but we know that joy also gives rise to movements of various kinds, for instance, laughter, clapping of the hands, stamping of the feet. The peculiarity of these movements is that they are all rhythmical and we know what a tendency there is for the functions of the sympathetic to be performed rhythmically. Now I do not mean to argue that it is the great sympathetic which excites the muscles to action in the production of these movements, but what I would suggest for your consideration is that the great sympathetic being the nervous system primarily excited it excites the cerebro-spinal system by means of its elaborate connection