

perhaps $1\frac{1}{2}$ inches, though not so much above. The central tendon of the diaphragm again is not, as we used to think, stationary, but moves downward 30 m.m. ($1\frac{1}{4}$ inches), it also moves forwards nearly to the same extent as the lower part of the sternum because the muscular fibres in front of it are much shorter than the posterior ones. These movements are accompanied by corresponding movements of the heart and the roots of the lungs; but as the shape and position of the heart vary and the pericardium is not a rigid sac, the upward and downward movements of the roots of the lungs are not nearly so extensive as are those of the central tendon of the diaphragm. The antero-posterior movements of the roots of the lungs are also less than those of the sternum, because the two pleuræ always touch one another in front of the heart and often do so behind. There are, as it were, both an anterior and a posterior mesopericardium to allow of the thickening of the thin anterior borders of the lungs and the inflation of their thick posterior parts during inspiration. In a direct side to side skiagram of the chest taken during full inspiration (but more easily in an oblique view) you may see a wide band of light between the shadow of the spine and that of the heart. This is a striking demonstration of what has been said above, and also of the amount of these movements. It incidentally reminds us of the explanation of the ease with which one pleura is affected from the other and of the danger of producing double pneumothorax in operations on the lower part of the posterior mediastinum.

As the upper part of the lung is more fixed than the lower, it might be thought that the act of inspiration would, by drawing down the distal portions of the air tubes, diminish the angle between the two main bronchi. But there is another force at work, namely, the inflation of the mass of lung that occupies this space, which would tend to increase this angle. I have made a number of experiments to elucidate this point with the help of my colleague, Mr. Hugh Morriston Davies, who is devoting, with much energy and originality, his attention to thoracic surgery.

Our method was to tracheotomize a monkey and insert through the opening two copper wires, one into each bronchus, and observe the movements through the screen. It was quite clear that the wire in the right bronchus was drawn inwards during inspiration, but we could not see the movement of the wire in the left bronchus. There is no reason to doubt that the movement was similar, viz., downwards and inwards.