http://www.geology.19thcenturyscience.org/books/Bridgewater-Treatises/index.html

cellular substance; thus forming them into a larger fibre; and again packing a number of these fibres into larger bundles: always surrounding each packet with a web of cellular tissue; which thus forms a separate investment for each. This plan of successive reunion into larger and larger assemblages is carried on through several gradations of size, till the entire muscle is completed.

That we may be the better able to appreciate the excellence of the plans adopted in the mechanism of the animal frame, let us inquire what arrangements would occur to us, prior to an acquaintance with those actually adopted, as the most advantageous dispositions of the muscular power. It is evident, that the simplest mode would be that of extending the fibres of the muscle in a straight line between the points intended to be brought nearer to each other. This direct application of the power, however, is seldom compatible with convenience, unless the parts to be moved are of very small size, and require very delicate adjustments. Straight muscles, accordingly, are employed chiefly for the movements of the minuter parts of the apparatus belonging to the senses, such as the eye, and the ear, and also that of the voice. In insects, when the hard case, or skeleton, is wholly external, this direct application of the moving force is also very generally employed. The shells of the bivalve mollusca, as of the *Oyster* and the *Cardium*, are closed by one or two straight muscles, the fibres of which pass immediately from the inner surface of the one to that of the other.

In the greater number of cases it is more convenient to place the muscle in a situation which causes it to act obliquely with respect to the direction of the motion produced in the part to which it is attached. This will, of course, be attended with a loss of force corresponding to the degree of obliquity; but there are, at the same time, advantages gained, not only in point of velocity of motion, but also in the effect being produced by a smaller extent of contraction in the fibres of the muscle. Oblique muscles are frequently employed in pairs, and are made to act on opposite sides of the line of the intended motion, which is, in this case, the diagonal between the direction of the two equal forces. Thus,