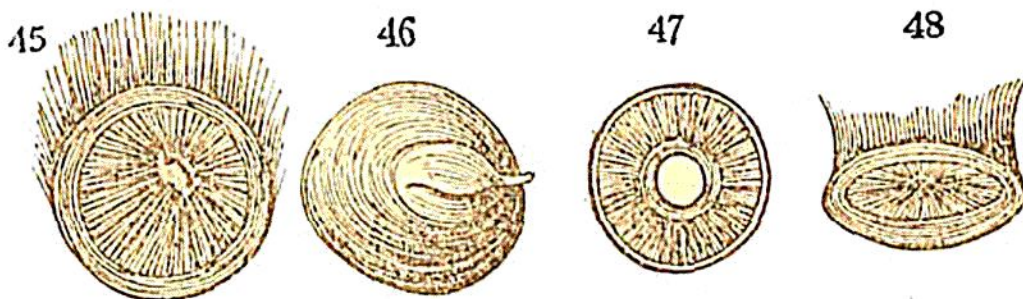


we frequently find that different portions of the same muscle have the power of contracting independently of the rest, so as to be capable of producing very various effects, according as they act separately or in combination. This is exemplified in the muscle of the back, called the *Trapezius*, represented in Fig. 44. In many instances, the fibres radiate in all directions from a common centre: this is the case with the delicate muscle of the ear-drum, as shown in Fig. 45. In that of the elephant, which is about an inch and a half in diameter, these radiating fibres are very conspicuous, even to the naked eye: and they are also visible in the membrane of the human ear, when viewed with a good microscope.*

At other times, the muscular fibres run in a circular direction, forming what is called an *orbicular*, or *sphincter muscle*, of which an example occurs in that which surrounds and closes the eye. (Fig. 46.) Very frequently these two last modes of arrangement are united in some part, as appears to be the case in the membrane of the eye, called the *Iris*. (Fig. 47. The circular fibres of the iris surround the central aperture, or pupil, the size of which they diminish when they contract; while, on the contrary, the radiating fibres, acting on the inner circle, and drawing it nearer to the outer circumference, which is fixed, lessen the breadth of the ring, and consequently enlarge the circular aperture.



A similar combination of radiating and circular fibres is employed in the construction of flat, or slightly concave muscular disks, which are thus rendered capable of exerting a strong force of adhesion to the surfaces to which they are applied. In these organs the circular fibres are placed at

* Home Phil. Trans. for 1800, p. 1.