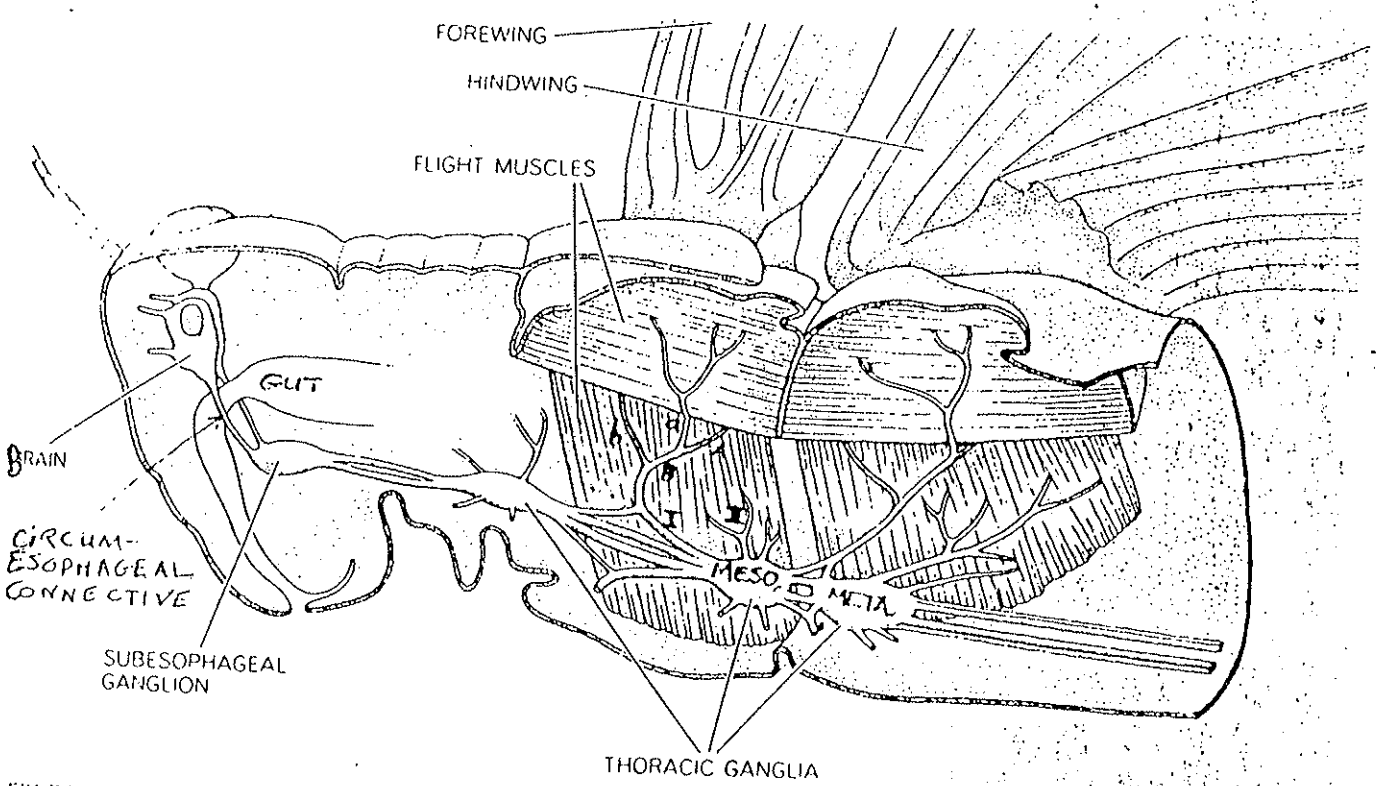
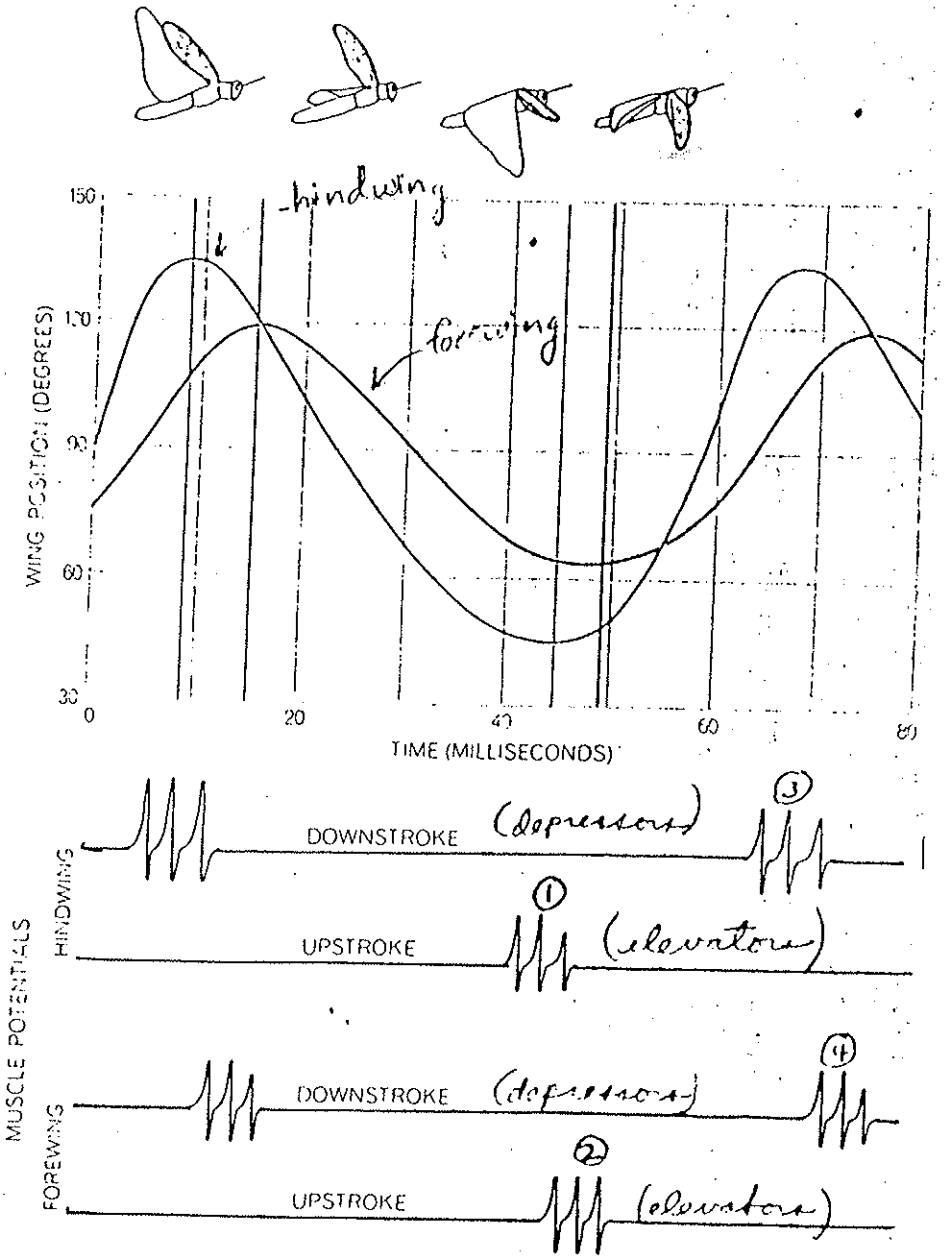
D. M. Wilson Locust flight

Anatomy



NERVES AND MUSCLES controlling flight in the locust are shown in simplified form. The central nervous system includes the brain and the various ganglia. From the thoracic ganglia, motor nerves lead to the wing's upstroke muscles (*vertical fibers*) and the downstroke muscles (*horizontal fibers*) above them. There are also sensory nerves (*color*) that sense wing position and aerodynamic forces.

behavior & physiology



MUSCLE-POTENTIAL RECORDS are summarized in relation to wing positions in a flying locust. The curves (*top*) show the angular position (90 degrees is horizontal) of the hindwings (*color*) and forewings (*black*). The four simulated traces at the bottom show how the downstroke and upstroke muscles respectively fire at the high and low point for each wing.