The nature of the oesophageal dysfunction in achalasia of the cardia is still uncertain. Observations have therefore been made with various techniques on normal subjects and on patients with achalasia of the cardia and with other oesophageal abnormalities, with a view to elucidating this problem. When the oesophagus in achalasia is examined at operation or by X-rays it is found to consist of a short, narrowed lower segment, above which is the dilated body. Strips of muscle removed at operation from this narrowed segment have been examined both pharmacologically and histologically, and compared with similar preparations from non-achalasic subjects. The oesophageal motility in the normal and in achalasia has also been studied by cineradiography. The results of these studies are reported and their significance is discussed.