Introduction
Traditionally, amino acids are always regarded as the fundamental ‘currency’ of protein metabolism. However, membrane transport of small peptides has become a growth area in the last decade, it being now well established that many cells possess independent specific membrane transport systems for peptides. These systems have been studied particularly thoroughly in small intestinal cells and in bacteria, and a substantial monograph has already been devoted to Peptide Transport in Protein Nutrition (Matthews & Payne, 1975). Also two Ciba Foundation Symposia have been held on Peptide Transport in Bacteria and Mammalian Gut (Elliott & O‘Connor, 1972) and Peptide Transport and Hydrolysis (Elliott & O‘Connor, 1977), and key reviews on peptide transport have been provided by Matthews (1975 a, b, 1977), Matthews & Payne (1980), Adibi & Kim (1981). See also Silk (1981) and Payne (1983). However, one special aspect that has been largely neglected hitherto is the possibility that peptides produced during digestion in vivo of a protein meal may enter the circulation in intact form, and that they may thus reach peripheral tissues where they could exert biological activities. While free amino acids are almost certainly a major form in which the amino-N from dietary protein enters the circulation, there is now a substantial body of evidence, albeit not widely known, that significant quantities of larger molecules, including peptides and even intact proteins, can cross the intestine. This evidence and its potential implications are the subject of this review. It must immediately be stressed that no study in vivo has ever quantitatively accounted for all the amino-N that leaves the intestinal lumen in terms of digestion products entering the circulation (see section 11).