INTRODUCTION

The placenta of monodelphous mammalia has been defined as ‘an apposition, or fusion of the foetal membranes to the uterine mucosa for physiological exchange’ (Mossman, 1937). Histological notes on the bovine placenta were made by Spiegelberg (1864) and Turner (1876). More important studies were performed on sheep by Bonnet (1882). Later Fraenkel (1898), Kolster (1903), Ledermann (1903), Jenkinson (1906), Strahl (1906), and Assheton (1906) studied the bovine placenta. More extensive works on the cow’s placenta were made by Hammond (1927) and Andresen (1927). The latter made a comparative description of the placenta in different ruminants. Recently Kingman (1948), Drieux and Thierry (1951), Weeth and Herman (1952), and Amoroso (1952) have studied the histology of the bovine placenta. The main histological features of a series of different placentae have recently been described. Histochemical research has been made on the placenta of Homo (Wislocki and Bennett, 1943, Dempsey and Wislocki, 1944, Wislocki and Dempsey, 1948), cat, dog, pig (Wislocki and Dempsey, 1946, a, b), and rodents (Wislocki, Deane, and Dempsey, 1946). Histochemical observations on the bovine placenta were made long ago. The first was a negative one. Claude Bernard (1859) failed to detect glycogen in the placenta of the cow although he found it in that of other animals. Glycogen was later found by Jenkinson (1906). Fat was demonstrated by Kolster (1903). Andresen (1927) described glycogen in placental cells. Wimsatt (1951) made a histochemical study of the trophoblastic giant cells of the placentae of sheep and cow. Recently Weeth and Herman (1952) studied the distribution of alkaline phosphatase, lipids, and glycogen in the bovine placenta. Foley et al. (1954) studied the occurrence of alkaline phosphatase and lipids in early stages.

The manner of transmission is in part dependent upon the placental structure, which is most various in different animals. A morphological study may discover some features of the metabolism, but a combination with histochemical methods would give a completer picture of the metabolic conditions. The placenta also acts as an endocrine organ. Histochemical studies therefore may be used to search for sites of hormone formation. In the literature there are conflicting reports concerning the histology of the bovine placenta, and several details are obscure. To get an adequate basis for histochemical studies a thorough morphological reinvestigation was found to be necessary.