

THE HOMOLOGIES OF THE STYLAR CUSP OF THE UPPER MOLARS OF THE DIDELPHYIDÆ*

INTRODUCTION

In the course of my studies on the relationships of the Australian Marsupialia I had occasion to examine the extensive series of skulls of modern Didelphyidae preserved in the British Museum, with the object of defining the ancestral characters present in the dentition. My notes on this subject included a thorough survey of the styelar elements in the upper molars; but, since the main changes in secondary evolution are played upon the main cusps of the molar crown, the modifications of these elements were not referred to in the general results as published,† except where points of sequence seemed to demand their consideration. In fact, the detailed study which I devoted to these structures was undertaken largely through interest in Winge's theory of dental evolution, according to which they are considered as normally three in number and as forming the original elements of the molar crown.‡ It has since appeared to me probable, however, that an account of the modifications of the styelar cusps in such a primitive group as the Didelphyidae would afford a basis for their comparison as molar elements in marsupials with similar structures in placentals, and that possibly their characters might afford a better means of discriminating the molar patterns of early Tertiary or Pretertiary representatives of the two groups than those of the main cusps of the molar crowns, in view of the fact that both are of trituberculate origin. The identification of stem forms depends on the distinction of the primitive characters of marsupials and placentals from one another, and from those which may be common to both; and no adequate conception can be formed concerning them until the habit of denoting the characters of early placentals as "mar-

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† Emsley, B. A., *On the Evolution of the Australian Marsupialia, etc.* (Trans. Linn. Soc., London; Ser. 2, vol. 9, pp. 83-217.)

‡ Winge, H., *Om Pattedyrenes Tandskifte, isaer med Hensyn til Taendernes Firmer.* (Vid. Medd. f. d. Naturh. Foren., Copenhagen, 1882.)