

evidence of which is found in *Otocyon*, *Centetes* and *Homo*, we derive as the ancestral formula of both orders :

Incisors, 4 ; Canines and Premolars, 5 ; Molars, 4.

The aberrant placental Cetacea point in the same direction as we read in the conclusion of Weber's fine memoir: "All the Cetacea sprang from a stem with a heterodont, but only partly specialized dentition (something like that of *Zeuglodon*, 3. 1. p. & m : 7), . . . not direct from Carnivores or Ungulates, but from a generalized mammalian type of the Mesozoic period, with some affinities with the Carnivora. . . . *Zeuglodon* itself branched off extremely early from the primitive line, and the heterodont *Squalodon* (mark its formula, 3. 1. 4. 7.) "branched off later from the toothed whale line, after the teeth had begun to increase in number and before homodontism had set in." It would be easier for us while speculating to take *Squalodon* and the *Odontocetes* directly from the Jurassic mammalian formula (3. 1. 4. 8.). As for the multiplication of this formula, we have found the way, says Kükenthal, by which numerous homodont teeth have arisen from a few heterodont molars, *it is by the splitting up of the numerous triconid molars of Jurassic ancestors into three*. He substitutes this hypothesis for the one advocated by Baume, Jülin, Weber, and Winge, that the multiple cetacean teeth represent the intercalation or joint appearance of both the first and second series of teeth, owing to the elongation of the jaw — a view which is now disproved by Kükenthal's discovery of the second row beneath the first. Since even by Kükenthal's hypothesis the typical Mesozoic mammals could not furnish as many teeth as are found in some of the dolphins, a likelier explanation than his seems to be that as the jaws were elongated the dental fold was carried back and the dental caps were multiplied.

The Edentates, like the Cetaceans, point back to heterodontism, and somewhat less clearly to a typical dental formula. We are here indebted to Flower, Rheinhardt, Thomas, Kükenthal, and Röse. It is their rudimental and useless first series which gives the evidence of heterodontism, while the second series has become adaptively rootless and homodont. The especially aberrant feature is that a double succession exists