THE RIDDLE OF THE UNIVERSE

mammalia. In doing so, I must remind the reader that the *monophyletic origin* of this class—that is, the descent of all the mammals from one common ancestral form (of the Triassic period)—is now fully established.

The most important consequence of the monophyletic origin of the mammals is the necessity of deriving the human soul from a long evolutionary series of other mammal souls. A deep anatomical and physiological gulf separated the brain structure and the dependent psychic activity of the higher mammals from those of the lower: this gulf, however, is completely bridged over by a long series of intermediate stages. The period of at least fourteen (more than a hundred, on other estimates) million years, which has elapsed since the commencement of the Triassic period, is amply sufficient to allow even the greatest psychological advance. The following is a summary of the results of investigation in this quarter, which has recently been very penetrating:

I. The brain of the mammal is differentiated from that of the other vertebrates by certain features, which are found in all branches of the class; especially by a preponderant development of the first and fourth vesicles, the cerebrum and cerebellum, while the third vesicle, the middle brain, disappears altogether.

II. The brain development of the lowest and earliest mammals (the monotremes, marsupials, and prochoriates) is closely allied to that of their palæozoic ancestors, the Carboniferous amphibia (the stegocephala) and the Permian reptiles (the tocosauria).

III. During the Tertiary period commences the typical development of the cerebrum, which distinguishes the younger mammals so strikingly from the older.

IV. The special development (quantitatively and