

Zealand crania also contained specimens of considerable magnitude, the longest arch was 62 mm., the shortest 49 mm., the widest was 69 mm., and the most contracted 57 mm. As a rule the breadth of the arch was markedly greater than the length, but in a few crania they approximated to each other and gave rise to a low palato-maxillary index. This was especially seen in the Australians (p. 39). One Admiralty Islander also had a palato-maxillary index of only 104, but the gnathic index in this specimen was moderate. In one dolichocephalic skull from Oahu the palato-maxillary index was only 103, and the gnathic index was moderate; in two others the length and breadth of this arch were equal, and in one of these the gnathic index was prognathous, in the other orthognathous. Although, as already stated in the description of the Australian crania, a dolichuranic palate is frequently associated with prognathism, it by no means follows that they should of necessity go together.

A long palato-alveolar arch is to be regarded as a sign of degradation of the human cranium, and this is the more marked when it is associated with relative narrowness and the consequent production of a low palato-maxillary index. In the anthropoid apes, for example, the length of this region in the adult skull is invariably considerably greater than the breadth, so that the palato-maxillary index is very low. Five skulls of the Gorilla in the Edinburgh University Anatomical Museum have a mean index of only 72, a single adult Orang has an index of 80, and an adult Chimpanzee an index of 82. In the young of the anthropoid apes, as I have determined from the measurements of three young Orang skulls in the same Museum, the length and breadth of the palato-alveolar region closely approximated, and the breadth in one even slightly exceeded the length, so that the index was considerably higher than in the adult. In the youthful stage of the human cranium, owing to the non-development of the true molars and the consequent shortness of the dentary arcade, the breadth of the arch is also greater in proportion to the length than in the adult skull, and the palato-maxillary index is very high. Illustrations of this may be seen in several of the young skulls, the measurements of which are given in the Tables.

Owing to the greater constancy of the cephalic and vertical indices in the same people, it follows that they are the most important features of study to guide the craniologist in his determination of the distinctive characters of races, for it is obvious that the less liable to variation any character is, the more does it stamp the race to which it belongs. The gnathic index ranks also very high as a racial feature, whilst the other indices to which I have referred are only of secondary importance. One cannot therefore but express a feeling of admiration at the acuteness of Anders Retzius, who so many years ago, and with much less refined methods than those employed in modern craniometry, seized upon the relation of the length to the breadth of the cranium, and on the relative amount of projection of the upper jaw as the foundation of his classification of the various races of mankind.