

ADAPTIVE COLORATION IN MAMMALS ASSOCIATED WITH THE SODA FLATS OF LAKE MAGADI

By MALCOLM J. COE

Biology Department, Royal Technical College of East Africa

Lake Magadi is a soda lake situated in the floor of the Rift Valley, some 70 miles south-west of Nairobi. The surface of the lake bears a thick crystallised layer of trona, which is dredged commercially by the Magadi Soda Company, Limited. At the southern end of the lake there are extensive soda flats derived from a series of lagoons which are fed by hot springs. The soda flats and associated pools of brackish water, rich in micro-organisms, algae and fish, attract numerous birds and mammals, many of which live permanently in the area.

Commonly seen on the flats are Wildebeeste and Zebra, with the occasional group of Wart Hog that come to drink at brackish pools in the vicinity. All these three mammals are of an unusually uniform pale coloration. The occurrence of pale colour forms is by no means uncommon in other parts of the world. A pale coloured race of the common House Mouse (*Mus musculus*), was described on a small island in Dublin Bay. The mice were found by ¹Jameson (1898), living on sand dunes on the island. As the island had only been in existence for a hundred years he proposed the reasonable hypothesis that this race had been produced within the stated period. This rapid evolution would have been hastened by the active predation of individuals lacking light protective coloration.

The formation of local races of mammals due to environmental factors is not a new idea. Pale forms have been described in arid areas of Africa and America on many occasions. Conversely dark forms have been associated with dark lava soils. The factors operating in such changes are many and involved. ²Cott (1951) noted that many authorities hold the view that pale coloration is associated with arid conditions and low humidity.

Observations at Lake Magadi suggest that in this case a new factor must be considered. The young of many mammals are of a different colour from that of their parents. Burrow dwellers require little in the way of camouflage in their early life and bold patterns are of no disadvantage to the survival of the species. Young Wart Hogs, with their conspicuous pattern, are too well protected by the parents for it to be disadvantageous to their survival ³(Mitchell 1912). Among the mammals of Lake Magadi we find that this disparity of colour between young and adult has been almost completely eliminated. Both Wildebeeste and Wart Hog bear a uniform sandy colour in both mature and immature animals, while Zebra maintain in adult life a colour very close to the brownish striped pattern of young animals. This uniformity of pattern may be explained in terms of their habitat, which is essentially barren and open, offering little in the way of shelter. In addition the almost continuous heat haze makes a sandy hue almost invisible at close range, and any slight difference in colour between immature and mature animals would be accentuated in such an atmosphere. It is interesting to note that nocturnal mammals, such as Hyaena, Jackal, and Wild Cat are all normally coloured, and do not show any of the colour changes associated with diurnal mammals.

¹Jameson, H. L. 1898: On a Probable Case of Protective Coloration in the House Mouse (*Mus musculus* Linn.). Journ. Linn. Soc., Zool., XXVI, pp. 465-73, I Pl.

²Cott, H. B. 1951: Adaptive Coloration in Animals. Methuen.

³Mitchell, P. Chalmers, 1912; The Childhood of Animals. London. pp. XIV + 269, 12 Pls., 36 figs.