

MISCELLANEA

MAMMALS.

THE ORIGINAL HOME OF *Mus decumanus*.—In a previous paper on the rats of Calcutta (*Mem. Ind. Mus.*, vol. 1, No. 1) I called attention to a paper by De l'Isle on the existence of a northern negroid race in the Brown Rat (*Ann. Sci. Nat.* (5), Zool., 1865, pp. 172-222). As my memoir was already in the press before I discovered this paper, I had to content myself with a brief note on the identity of the Indian and European forms of *Mus rattus*. A fact that caused me some doubt all through the writing of the descriptions of the rats of Calcutta was that *M. decumanus*, as observed by me in Calcutta and as exemplified by the collection of skins from different parts of India in the Indian Museum, is characterized by a distinct though variable paleness of the lower surface of the tail, whereas in Great Britain the whole tail is of one colour. De l'Isle puts forward a theory which, though it is open to objection on some points, seems to afford a satisfactory explanation of this observation of mine, and to throw light on the problem of the original home of *M. decumanus*. His theory, briefly, is that the original wild form of *Mus*, as exemplified both in *M. sylvaticus* and *M. alexandrinus*, has the underparts white or of a light colour and the tail bicoloured (although in the case of *M. alexandrinus* the tail is of a uniform pale brown); but that the corresponding parasitic forms, namely *M. musculus* and *M. rattus*, which have attached themselves to man and have therefore freed themselves from the necessity of protective coloration to some extent, have become dark below and have developed uniformly dark tails. The second part of his theory is that the change is also due in part to climate, and that under the grey skies of the north the clear and sharp differentiation between the upper and the lower surfaces tends to disappear, and a uniform coloration to be produced. The most marked instance of this is, he says, to be found in *M. rattus*, the northern offshoot of the Oriental wild parent form *M. alexandrinus*. In reference to the climatic change in *M. decumanus* he merely cites the deviation from type described as *M. hibernicus*, an occasionally black variety found in the British Isles. In reference to the change in this rat due to parasitism, he writes as follows:—

“A parasite like the rat (*M. rattus*) or the mouse (*M. musculus*), and like these species of Asiatic origin, the Brown Rat (“surmulot”), which was only introduced into France towards the middle of last century, already exhibits very evident traces of alteration in colour. Thus one frequently meets with individuals that have the

under-surface no longer whitish, but ash-coloured, with scattered blackish hairs, and the tail *not* of two colours, white below, as in the type of the species, but uniformly blackish grey."

Before discussing the pros and cons of De l'Isle's theory, it may be pointed out that he recognizes *M. decumanus* as a rat of eastern origin characterized by having a tail of two colours. Its most extreme departure from type, as found in the melanotic form known as *M. hibernicus*, he believes to be due to climatic environment; the minor alterations, shown mainly in the darkening of the under-surface of the tail, he credits, on the other hand, to the effects of parasitic life. Though this theory is a fascinating one, it is not to be accepted without reservations, and there are points in it to which exception may be taken, especially in view of the facts and observations recently collected. The strongest point in its favour is that what he describes as the "wild" type of coloration is almost universal in wild animals of every sort and is now well known to have great protective value. In favour of the climatic part of the theory is the fact that in Calcutta, although I have examined thousands of specimens, I have never come across one that showed a tendency to general melanosis, but have frequently noted the ashy grey belly which he quotes as an instance of the parasitic type of coloration. The strongest argument against the whole theory is that he assumes that the typical form of *M. alexandrinus* exhibits what he calls the "wild" type of coloration. This is probably far from being the case, for Liston has shown that no less than 20 per cent. of the rats of Bombay are black, while here in Calcutta, while black rats are rare, nearly half of the specimens I have collected have grey or orange-grey bellies. *Mus decumanus*, if of eastern origin, should be wild in the East, but I have come to the conclusion that it is even more strictly parasitic on the banks of the Hughli than it is on the banks of the Thames. In Bengal, and in India generally, it is hardly to be found except in seaports and, occasionally, on the banks of the great navigable rivers that debouch at these ports; in the interior of Bengal and Assam, as I learn from Capt. Gourlay, I.M.S., and others, it is practically unknown. Why should this be if it is living nearer to its original home than in Great Britain? Again, if reliance is to be placed on De l'Isle's theory of parasitic versus "wild" coloration, it might be expected that *Nesokia bengalensis*, which in Calcutta is a parasitic rat, would show a marked difference when living under purely natural conditions. So far as I know, it shows no such difference. Doubtless this is one of the points that will be taken up in the proposed survey of the rats of India. Another point worthy of investigation would be the question whether *Mus rattus* exhibits a greater tendency of "wild" coloration when living in trees than it does when living in human habitations.

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COLOUR CHANGE IN *Hylobates hooiok*, HARLAN.—It is generally believed that the variation of colour to which this species is subject