

the last decade of July and the first of August. The two oldest animals seem to have hibernated already twice. At least in favourable years, sexual activity seems to last on till late autumn. The litter-size varies from 2—6 ( $M = 3,8$ ), the number of mammae is comparatively high (8). The population studied cannot be distinguished from that living in the Caucasus-mountains. With advancing use the enamel pattern of all molars undergo distinct changes which is to be considered when studying this species in taxonomical view.

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## A Note on the Lion's Mane

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The question of the mane of the lion, *Panthera leo* Linnaeus, 1758, was already many times discussed, especially as for its colouring. The opinions of various authors are on the one hand to a certain degree corresponding, on the other hand they are different.

In this place I should like to bring only a short note to the question of so-called "black-maned" and "tawny-maned" lions. It is a well known fact that within one and the same lion's population there may be found adult and old males with black manes as well as those with tawny manes. It is, indeed, necessary to state beforehand that as far as the "black mane" is concerned it means generally a very dark-brown mane mixed with black hairs. Moreover POČOCK (1931, p. 640) notes: "In my experience there is no such thing as a wholly »black-maned« or a wholly »tawny-maned« lion. Lions with the blackest manes always have the face surrounded by a tawny fringe. It is on the crest and the areas behind and below the head that the black pigment is developed giving a sharp contrast in colour between the mane and

the body and fore legs. On the other hand lions with the tawniest manes almost always show a certain amount of dark pigmentation along the median crest and low down in front of the base of the foreleg. There is very gradation between these types; and »black« and »tawny« appear to imply merely a preponderance of one colour or the other in the mane.“

GUGGISBERG (1961, p. 50) states: "The big cats have, as a rule, a marked tendency to produce black varieties. The well-known »black panther« is nothing but a melanistic form of the leopard . . . The black mane of the lion may also be a trend in this direction.“ This GUGGISBERG's opinion quotes also HEMMER (1962, p. 111). I think it rather impossible to accept this point of view: The black mane, which appears so frequently in lions, cannot be interpreted — as I suppose — as a tendency to melanism or even as a partial melanism.

The true mutational melanism is an anomalous phenomenon of congenital character, and in a certain sense of the word a developmental defect. It is well known that the melanism, if it appears, is found mostly on the whole body, and that it is merely in rare occurrence on certain areas of the body. The albinism is on the contrary often found as partial.

In this connection it is important to say that the black mane appears solely in full-grown lions and that the black (or very dark) colouring of mane arises no sooner than in the course of the postnatal life. In the Zoological Gardens in Prague I had an opportunity to observe several times the mane-growth in male lions. The mane is in all males at the beginning of its growth always yellow or tawny, and only much later when relatively developed it deepens its dark colour. This experience is surely no *novum*, and it is certified also by numerous observations from the open. For instance, STEVENSON-HAMILTON (1947, p. 343–345) mentions brief descriptions of 50 largest male lions which he shot himself in the territory of Kruger National Park. From this number STEVENSON-HAMILTON determined 12 specimens as being in the "early prime" of life: in 10 specimens is a note "yellow mane" and only in 2 ones there is noted "black and yellow mane". Besides those 50 males he had examined also "about twenty young male lions 18 months to 2½ years old" and in all these he found "incipient yellow manes“.

Consequently, the black mane does not appear until in the course of the physical and sexual maturity-process, and for this reason cannot be regarded as a trend to melanism. My opinion is that the occurrence of the black mane in lions must be considered only from the point of view of the individual variability. This standpoint, of course, does not dispute that the occurrence of black mane is a phenomenon of mutational character. It is a well known fact that the lion represents a species the phylogenetical age of which is not too high, and it is known also that in all such species the individual variability is very considerable. Moreover in many other species of big mammals (*Ursus americanus*, *Ursus arctos*, *Giraffa camelopardalis*, *Odocoileus virginianus*, *Hylobates lar*, etc.) there exists a relatively great extension of the colouring which is — and must be — likewise qualified only as individual variability of colouring.

In the respective literature only one case of so dark colouring in a lion is registered which might be concerned as a tendency to melanism. The specimen in question is a male killed in the last century in Ram Hormuz (South-West Persia) mentioned by LAYARD (ex ПОЦОК, l. c., p. 646), and which was "unusually large and of a very dark brown colour, in some parts of its body almost approaching black“. ПОЦОК adds: "... the example from Ram Hormuz indicates a lion . . . so dark indeed as to make one think it might be regarded almost as a melanistic mutant, an interesting case, if so, because although tigers are sometimes black and leopards and jaguars not uncommonly, no black lion, so far as I am aware, has ever been seen.“

Many authors have already pointed to the fact that the lion's mane cannot be regarded as a subspecific criterium. Especially, in East African lions the variability of the colouring and extension of manes is very great. In spite of all above mentioned we must agree with POCOCK (l. c., p. 641) who says: "...it may in the future be found when more extensive observations have been made that on the average the lions from one district may have heavier and blacker manes than those from another". As illustration may be shown the extinct Cape black-maned lion, *Panthera leo melanochaitus* H. SMITH, 1842, in which — according to the old authorities — a remarkable black mane was formed. As long as preserved mounted specimens of this lion subspecies were not known, there arose several times doubts about the colour and extension of the mane of Cape lions. As it is shown elsewhere (MAZAK, 1963) we know to-day five specimens of male Cape lions, four of them being full adult exemplars. In all these four specimens very extensive and black manes are present. It is very probable that the dark mane was an characteristic feature of the whole Cape lion's population.

I should like to add to HEMMER's (1962) paper that the statement (p. 109) "der rezente indische Löwe . . . weitgehend mähnenlos ist . . ." does not seem to be right. Why, it was several-times shown that the data on the so-called "maneless-lions" of India cannot be understood literally, and that the completely maneless males are found in India just as scarcely as in Africa. This question was discussed *en détail* by POCOCK (l. c., pp. 640 and 649). The same author found among all lion's skins from Asia which he had at his disposal no maneless male. Similarly, the photos of lions of Gir Reserve published by ULLRICH (1962) show a male lion with a well developed mane.

HEMMER (l. c.) explains the "manelessness" of Indian lions as follow: „Bei den indischen Löwen muß es sich um eine Gruppe handeln, die von der Urpopulation bereits zu der Zeit getrennt wurde, als die mähnenbedingenden Allele schon in geringem Prozentsatz vorhanden, die entsprechenden Selektionsfaktoren jedoch noch nicht wirksam genug waren, die später in der Stammpopulation die Mähnenbildung stark förderten.“ This opinion is very hardly to be maintained. Firstly — as mentioned above — it is impossible to consider the Indian lions as really maneless, and moreover, this HEMMER's opinion takes for granted a certain geographical separation of Indian lions. This fact can be accurate at the present time, but it is contradicted by the past. Can we say that this isolation or separation of Indian lions has existed in the past? Certainly not. We know that the areal of lion was but 150–200 years ago completely connected from Red Sea as far as to the Bay of Bengal (POCOCK, 1939, p. 213; TALBOT, 1960, p. 219). For this reason we may state that there exists a certain geographical isolation or separation only between the African and Asiatic populations of lions, but no isolation of this kind can concern the Indian lions. The Indian and Baluchistan populations of lions were, however not long ago, in direct contact with those of Persia and Mesopotamia. We know without fail that the Persian and Mesopotamian lions had well developed manes. This statement can be supported by a series of figures and sculptures of Old Sumerians, Babylonians and Assyrians.

### Summary

In the present article the question is discussed whether the black mane which so often appears in male lions might be concerned as a tendency to melanism. The author presumes that this phenomenon must be interpreted only from the point of view of individual variability. He shows the fact that the black manes in all male lions do not appear until during the physical and sexual maturity-process, and that in all young lions the incipient mane is always of yellow or tawny colour.

The author also has his reservations and objections to the opinion that the Indian lions are mostly maneless according to their ancient separation from original population, which was



said to be maneless. The author emphasizes on the contrary the fact that in India as well as in Africa completely maneless lions are found very rarely, and that as a matter of fact the Indian population was geographically never separated from other more occidental populations. The areal of lion was in Asia quite connected in even not too past time.

### Zusammenfassung

Es wird die Frage erörtert, ob die so häufig bei männlichen Löwen vorkommende schwarze Mähne als Tendenz zum Melanismus angesehen werden kann. Der Verf. ist der Ansicht, man könnte es nur als individuelle Variabilität ansehen. Er weist darauf hin, daß die schwarze Mähne aller männlichen Löwen nicht vor der physischen und sexuellen Reife auftritt und daß bei allen Junglöwen die Mähne gelb oder bräunlich ist. — Verf. hat auch seine Vorbehalte und Widersprüche gegenüber der Behauptung, daß die indischen Löwen zumeist mähnenlos seien infolge früher Trennung von der ursprünglichen Population, die mähnenlos gewesen sei. Es ist aber Tatsache, daß völlig mähnenlose Löwen sowohl in Indien als auch in Afrika nur sehr selten gefunden werden, andererseits die indische Löwenpopulation bis auf die jüngste Zeit niemals von den westlichen getrennt war.

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