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AN ATLAS OF HAIR FROM SOUTHERN AFRICAN MAMMAL SPECIES
WITH REFERENCE TO ITS TAXONOMIC AND ECOLOGICAL SIGNIFICANCE

by

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ABSTRACT

This thesis deals with the microstructure of hair of mammal species, in particular the Carnivora from southern Africa. Various techniques for investigating the structure of hair, both by transmission and transmission-electron microscopy are described. A substantial part of the work comprises an atlas of the hair of thirty-six species of southern African Carnivora which includes micrographs, coloured plates of typical hairs, locality data and a descriptive text for each species.

The study is not confined to the Carnivora and the taxonomic importance of hair is demonstrated with examples drawn from a wider field. The highly practical relevance of hair identification in epidemiology has been the source of investigations over the years, and these have been included to demonstrate the value of hair identification.

In discussing adaptations of hair to ecologically selective pressures, and the part it plays in the adaptation of the mammal to its environment, the general and detailed structure of hair has been dealt with relative to the aquatic habitat, thermoregulation and the desert environment.

From considerations of the way in which the mammalian pelt provides a link with the environment there arises a proposition that the microstructure of the hair, and in particular the nature of the medulla, is of significance in the interaction with longwave infrared radiation. This viewpoint, which is backed at this point only by preliminary observations, requires further examination.

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