

Chromosomes of the Rock Hyrax, *Procavia capensis* (Pallas), 1767

The order Hyracoidea is at present represented by 3 surviving genera and approximately 9 species. According to SIMPSON¹, the hyracoids have been a taxonomic stumbling block; he states further: 'The wider affinities of this order were, and are, uncertain, but the consensus has been that they are... distantly related to the Proboscidea.' For this reason, and because we had earlier studied the chromosomes of the elephants (HUNGERFORD, CHANDRA, SNYDER and ULMER²) we believed that chromosome studies of hyraxes would be of interest.

The animals studied were all from the collection of the Philadelphia Zoological Society. Material for tissue culture was obtained by skin biopsy from 2 hyraxes, an adult female (accession number 149M) on exhibit in the Zoological Garden and an old adult male (150M) housed in quarantine facilities because of lack of exhibition

space. Lung, kidney, and skin were obtained from a third animal (159M), a new-born male, at autopsy. Cultures were established from all 3 tissues, but chromosomes were studied only in cultures from skin. Slides for chromosome study were in all cases prepared from the second to fifth culture passages.

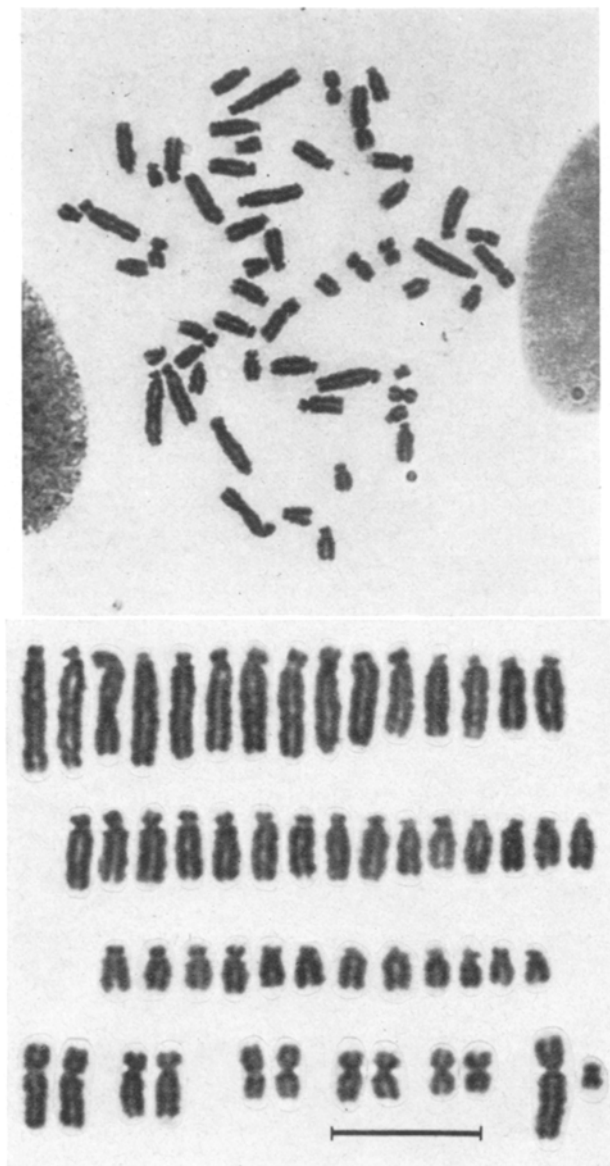
The chromosome number of this species of hyrax was found to be 54 (see Figure). The complement has been separated into 3 groups. 21 pairs of autosomes form a continuous series of acrocentrics. Within this group, pairing on the basis of morphology may be possible, but with relatively little certitude. 2 pairs of relatively large, submetacentric autosomes form a second group, and 3 pairs of small autosomes with nearly median centromere positions form a third. The X is the largest chromosome having a submedian centromere position, and the Y chromosome is a very small acrocentric.

Comparison of the karyotype of this species of hyrax with those of the 2 elephant species does not, except for the X chromosomes, indicate any striking morphological similarities. However, this may result largely from the fact that the majority of chromosomes is in all cases represented by a more or less continuously graded series of acrocentrics. The fundamental number (N.F.)³, or number of major chromosome arms, is 66 for the hyrax and at least 64 for the elephants. (It is possible to assign an N.F. of 66 to our 2 specimens of the Asian elephant, depending upon the interpretation of 1 pair of acrocentric autosomes which have prominent short arms.) These findings appear to be compatible with the concept, founded on other grounds, of a distant relationship between the 2 groups. Additional studies of other hyrax species would be of interest in this regard, as would chromosome studies of the Sirenia (dugongs, sea cow, and manatees), which are also suspected of having taxonomic affinities with the Proboscidea⁴.

Zusammenfassung. Es werden die Chromosomen eines weiblichen und zwei männlicher Felshyraxarten, *Procavia capensis* (Pallas), 1767 (Hyracoidea: Mammalia) beschrieben. Ihre diploide Chromosomenzahl ist $2n = 54$. Mit Ausnahme der X-Chromosomen sind keine eindeutigen Chromosomenkomplement-Übereinstimmungen mit denjenigen von Elefanten sichtbar. Hingegen sind die allgemeinen Eigentümlichkeiten der Karyotypen und die Anzahl der Hauptarme der Chromosomen ähnlich und stimmen überdies mit taxonomischen Verbindungen, die zwischen den Hyracoidea und den Proboscidea angenommen werden, überein.

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Chromosomes of a male rock hyrax, accession number 159M ($2n = 54$). A metaphase (above) and its karyotype analysis (below). The X and Y chromosomes are at the lower right. Scale indicates 10μ .

¹ G. G. SIMPSON, Bull. Am. Mus. nat. Hist. 85, 1 (1945).

² D. A. HUNGERFORD, H. SHARAT CHANDRA, R. L. SNYDER and F. A. ULMER JR., Cytogenetics 5, 243 (1966).

³ R. MATTHEY, Experientia 1, 50 and 78 (1945).

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