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A NOTE ON THE COMPARATIVE MICROANATOMY OF *M. LONGISSIMUS DORSI* OF THE AFRICAN ELEPHANT AND DOMESTIC BULL

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The growing interest of late in the meat production potential of game animals (*vide* Talbot, Payne, Ledger, Verdcourt & Talbot, 1965) has given rise to considerable speculation on the meat qualities of the species involved. Thusfar, however, research data are confined very largely to live weights and carcass yields, particularly in the case of larger species such as the African elephant (*Loxodonta africana*).

A basic feature of meat is its texture, a term which relates to the size of the muscular fasciculi or bundles, along with the cross-diameter of the constituent muscle fibres. Although the relationship between texture and quality *per se* is by no means clear-cut (Yeates, 1965), it remains fundamentally important to study this factor in an effort to acquire a broad perspective of the meat in question.

A sample of *M. longissimus dorsi* taken *post rigor* from a central position (both longitudinally and in cross-section) of the muscle, was obtained from a young bull African elephant. Not discounting the possible effect of a 10 % formalin fixative as recently reiterated by Hegarty & Naudé (1969), altogether 1 272 muscle fibres were measured by means of a lanameter according to the method described by Joubert (1956). A portion of the sample was moreover sectioned following wax-embedding with a view to producing photomicrographs. For comparative purposes samples of the same muscle were taken at the identical situation from the carcasses of five young (14 ms) Friesland bulls. Of the bovine samples 401 individual muscle fibres were measured.

The results in Table 1 suggest that the elephant has thinner muscle fibres on average than the domestic bull of approximately the same stage of physiological development; the latter assumption being based on an average figure of 5 178 kg for mature elephants, cited by Robinette (1963). Furthermore, as shown in Plate 1, at least so far as the primary bundles are concerned, there is little to choose between the samples deriving respectively from the elephant and the domestic bull. It would appear therefore that the eating quality of elephant meat should, with favourable postslaughter treatment, be acceptable to a consumer public who do not object unduly to the source and possible gamey taints of meats derived from this origin.

Table 1

Comparative body weights and muscle fibre diameters (M. longissimus dorsi) *of African elephant and domestic bull.*

	African Elephant	Domestic bull
	Body Weight	
n	1	5
Mean (kg)	3 850	329 5
	Muscle Fibre Diameter	
n	1 272	401
Mean ($\mu \pm$ SE)	51,11 ± 1,18	59, 81 ± 1,64
CV (%)	31,9	21,2

Compared with a mean dressing percentage of 50,8 % for the Friesland bulls studied, Pienaar (1971) in a personal communication estimates that the elephant yields approximately 35 to 40 % of its total weight in meat. At the Kruger National Park between 56 and 60 % of the latter amount is currently turned into biltong, though the remainder is perfectly suitable for canning or other forms of processing. In time, no doubt, further uses of elephant meat will however be explored.

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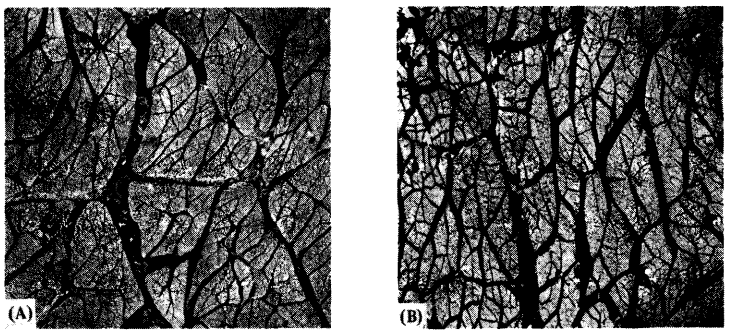

Plate I

Cross-section through M. longissimus dorsi *of (A) African elephant and (B) domestic bull showing fascicular development.*