

FOOD REGURGITATION IN BENNETT'S WALLABY, *PROTEMNODON*
RUFOGRISEA (DESMAREST), AND THE SCRUB WALLABY, *THYLOGALE*
BILLARDIERI (DESMAREST)*

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Recent studies of the digestion physiology of a wallaby, *Setonix brachyurus* (Quoy & Gaimard) have shown that digestion in that species is ruminant-like (Moir, Somers, and Waring 1956). In view of the similarity of stomach anatomy, it may be presumed that all members of the kangaroo family will show the same type of digestion. This brings up the question whether or not kangaroos chew the cud.

Anecdotal reports of cud-chewing in kangaroos are fairly common. Wood Jones (1923) states that no marsupial chews the cud, but that kangaroos and bandicoots regurgitate their food. "The animal, after a meal, makes a vigorous heaving movement of its chest and abdomen, and the stomach contents, which are forced up into the mouth, appear to be swallowed without further chewing." Moir, Somers and Waring observed such regurgitation in *Setonix brachyurus*. They also frequently observed kangaroos chewing, usually in a lying posture, sometimes as much as several hours after feeding. They concluded that it "seems probable, but not proven," that kangaroos chew the cud. Calaby's (1958) *S. brachyurus* often ejected a bolus of partly digested food, which was re-ingested immediately.

The author has observed similar behaviour in Bennett's wallaby, *Protemnodon rufogrisea* (Desmarest), and the scrub wallaby, *Thylogale billardieri* (Desmarest), in Tasmania on a number of occasions over the past eight years. At Lake St. Clair, a number of semi-tame Bennett's wallabies visit the ranger's house for food. Two of these animals were observed to cease browsing, and after remaining crouched for some time they regurgitated a quantity of food after violent convulsive movements of the whole body. The digesta were retained in the mouth, which remained closed, and were chewed thoroughly before being re-swallowed. Small amounts of semi-liquid food and grasses were spilt from the sides of the mouth and fell to the ground. The regurgitation required considerable effort by the wallabies, and in this respect differed from regurgitation during rumination by ruminants.

Similar behaviour was observed in captive Bennett's wallabies that were confined in an enclosure at Wynyard and in scrub wallabies, *Th. billardieri*, in the winter snow at Cradle Mountain Chalet. In all cases, the wallabies had been fed on bread or biscuits shortly before regurgitation occurred. When the spilt digesta were examined, they were found to contain only fresh-looking grass or herbs that appeared to be less chewed than the material found in dissected stomachs. At Mt. Field National Park captive Bennett's wallabies were fed on pollard, followed by apple and carrot. After they had been eating these foods for about an hour two animals regurgitated, and in both cases the digesta spilt consisted of grass only.

* Manuscript received September 22, 1959.

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This indicates that it is not necessarily the most recently ingested food that is regurgitated, and that grasses and herbs may be regurgitated and chewed more thoroughly before being re-swallowed and retained for digestion.

At higher altitudes (Lake Echo, Dee River), where snow lies for long periods in winter, the tracks of wallabies and other animals are easily followed. Where a wallaby had rested for any length of time, spilt digesta were often seen on the snow-surface. That fact, together with the observations made at close quarters on semi-tame or captive animals, suggests that food regurgitation is common in wild wallabies.

It seems possible that wallabies have a regurgitation mechanism analogous to rumination in ruminants.

References

- CALABY, J. H. (1958).—Studies on marsupial nutrition. II. The rate of passage of food residues and digestibility of crude fibre and protein by the quokka, *Setonix brachyurus* (Quoy & Gaimard). *Aust. J. Biol. Sci.* **11**: 571–80.
- MOIR, R. J., SOMERS, M., and WARING, H. (1956).—Studies on marsupial nutrition. I. Ruminant-like digestion in a herbivorous marsupial (*Setonix brachyurus* Quoy & Gaimard). *Aust. J. Biol. Sci.* **9**: 293–304.
- WOOD JONES, F. (1923).—"The Mammals of South Australia." Part I. (Govt. Printer: Adelaide.)