

*On the Guliga of Borneo.* By A. HART EVERETT.

The Guliga, more commonly known as Bezoar, forms a recognized article of export from the Rejang and Bintulu rivers in the Sarawak territory. These concretions are chiefly obtained from a red monkey (a species of *Semnopithecus*), which seems to be very abundant in the interior districts of Borneo. A more valuable Guliga, called the "Guliga Landak," is obtained from the porcupine; but it is comparatively rare. The Sepoys stationed at Sibu Fort in the Rejang formerly exported considerable numbers of these calculi to Hindustan, where, in addition to their supposed efficacy as an antidote for the poison of snakes and other venomous creatures, they appear to be applied, either alone or in combination with other medicines, to the treatment of fevers, asthmatic complaints, general debility, &c. A few years ago, however, these men ceased to send any but the Guliga Landak, since their *hakims* had informed them that the concretions obtained from the monkeys had come to be considered of very doubtful, if any, value from a medicinal point of view.

The usual test for a good Guliga is to place a little chunam on the hand, and to rub the Guliga against it, when, if it be genuine, the lime becomes tinged with yellow. Imitations are by no means rare; and on one occasion that came to my own knowledge some Bakatans succeeded in deceiving the Chinamen, who trade in these articles, by carefully moulding some fine light clay into the form of a Bezoar, and then rubbing it well all over with a genuine one. The extreme lightness of a real Guliga and the lime test, however, are generally sufficient to expose a counterfeit Bezoar. The Sepoys and Malays apply various imaginary tests. Thus they assert that if a true Guliga be clasped in the closed fist, the bitter taste of the concretion will be plainly susceptible to the tongue when applied to the back of the hand, and even above the elbow if the Guliga be a good "Landak;" and a Sepoy once assured me that having accidentally broken one of the latter, he immediately was sensible of a bitter taste in his mouth.

Accounts vary very much among the natives as to the exact position in which the Guligas are found—some saying they may occur in any part of the body, others that they occur only in the stomach and intestines, whilst I have heard others declare that they have taken them from the head and even the hand! Bezoar-stones are sold by weight, the gold scale being used; and the value varies according to quality and to the scarcity or abundance of the commodity at the time of sale. The ordinary prices paid at Rejang a few years ago were from \$1.50 to \$2 per amas for common stones, and from \$2.50 to \$4 per amas for Guliga Landak. I have seen one of the latter which was valued at \$100. It was about the size of an average Tangier orange, and was perfectly spherical. The surface, where not artificially abraded, was smooth, shining, bronze-brown, studded with numerous irregularly-shaped

fragments of dark rich brown standing out slightly above the general mass of the calculus. These fragments, in size and appearance, bore a close resemblance to the crystals in a coarse-grained porphyritic rock.

The common monkey-bezoars vary much in colour and shape. I have seen them of the size of large filberts, curiously convoluted and cordate in shape, with a smooth, shining surface of a pale olive-green hue. Mr. A. R. Houghton once showed me one which was an inch and a half long, and shaped like an Indian club. It was of a dirty greenish colour, perfectly smooth and cylindrical; and it had become aggregated around a portion of a sumpitan dart, which appears to have penetrated the animal's stomach, and, being broken off short, subsequently served as the nucleus for the formation of a calculus. The same gentleman had in his possession two Landak stones, one of which bore a close resemblance to a block in shape, and was of a bright green colour; and the second was of a rich chocolate-brown, and could best be likened in form to a constable's staff. One porcupine-stone, which was opened, was found to be a mere shell full of small brown shavings like shred tobacco.

The part of the island which produces these stones in greatest abundance seems to be, by a coincidence of native reports, the district about the upper waters of the Baluṅgan (Batang Kayan). The story is, that the head waters of this river are cut off from its lower course by an extensive tract of hills beneath which the river disappears, a report by no means unlikely if the country be, as is probable, limestone. The people of the district have no communication with the lower course of the river, and are thus without any supply of salt. In lieu of this necessary they make use of the waters of certain springs, which must be saline mineral springs, and which the Kayans call "Suṅgan." These springs are also frequented by troops of the red monkeys before mentioned; and the Bezoars are most constantly formed in the stomachs of these animals, "through their drinking the saline water." The hunters lie in wait about such springs; and, so runs the report, on the animals coming down to drink, they are able to guess with tolerable certainty, from external signs, which of the monkeys will afford the Guliga; and they forthwith shoot such with their sumpitans. I have this account, curious in more ways than one, from several quite independent sources.

In concluding these brief notes, I may remark that the widespread idea of the medicinal virtue of these concretions would lead us to suppose that there is some foundation for their reputation.—*Journal of the Straits Branch of the Royal Asiatic Society*, 1880, p. 56.

*On the Histology of the Pedicellariæ and of the Muscles of Echinus sphaera, Forbes.* By MM. P. GEDDES and F. E. BEDDARD.

Although our knowledge of the general form and of the calcareous parts of the pedicellariæ of the Sea-Urchins is now nearly com-