

Caput breve, transversum, facie sub antennas verticale tenuissime punctata, subtus semicirculariter terminata, clypeo et mandibulis brevibus crassis semicirculo inclusis, labro minuto ciliato. Antennæ fere longitudine corporis, graciles simplices nigrae. Prothorax elongatus, prope basin valde constrictus, parte antica ovata valde gibbosa, punctis elongatis seu striolis gracilibus numerosis impressus, griseo parum setosus; parte pone constrictionem brevi subannuliformi transversim elevata. Elytra capite et prothorace paullo longiora; basi prothoracis partis latioris latitudine, in medio sensim dilatata ovata, valde convexa glaberrima, basi carneo-castanea rude oblongo-punctata singuloque tuberculo magno elevato apice acuto reflexo, instructo, ultra basin punctatam ovalia, valde convexa glaberrima cyaneo-nigra, impunctata, apicibus albo-setosis. Pedes cyaneo-nigri. Corpus infra nigrum, pectore pube grisea dense vestito.

Taken by Major Champion on *Eryobotria Chinensis*, Champ., on Victoria Peak, near Hong Kong, April 6th, 1849.

Pl. XII. fig. 6, Insectum valde auctum; 6a, idem a latere visum; 6b, labrum; 6c, mandibula; 6d, maxilla; 6e, instrumenta labialia.

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XXVI. *On the Insects used for Food by the Indians of the Amazon.* By A. R. WALLACE, Esq.

[Read 6th June, 1853.]

ANNULOSE animals have found little favour as articles of food, and those which have come into use in one country are often despised in another. We ourselves consume quantities of *Crustacea*, but would be loth to eat the locusts of the East or the fat butterflies of Australia; while the palm worms of the West Indies, though highly esteemed there, have not yet been introduced at the tables of our epicures.

The Indians of the Amazon are less fastidious in their tastes, for while turtles, alligators, lizards, snakes and frogs are all common articles of food, some species of insects and other *Annulosa* furnish them with their greatest luxuries. Six different orders—*Hymenoptera*, *Neuroptera*, *Homoptera*, *Coleoptera*, *Aptera* and



*Annelida*—each supply one species to add to the varieties of the Indian's bill of fare.

The first is a great-headed red ant, the *Ecodoma cephalotes* of Latreille. This insect inhabits the whole Amazon district, and, I believe, a great part of Brazil and Guiana, and is one of the most destructive of the whole family. It frequents sandy districts and places where "red earth" is found, but is absent from the "black earth" or the rich alluvial soil of the Amazon. It forms its nests in the woods and in gardens, turning up the soil in such large heaps as to make one doubt whether so small an insect could have been the workman. I have seen elevations of this kind twenty feet square and a yard high, containing many tons of earth. These hillocks are riddled with holes in every direction, and into them the ants may be seen dragging little circular pieces of leaf, which they cut off from particular trees which they prefer; orange trees and leguminous shrubs suffer most from their ravages, and these they will sometimes entirely strip of their leaves in a night or two. Young plants too of every kind suffer very much, and cannot be grown in many places on account of them. They remain in one locality a long time; for on my observing to a gentleman at a cattle estate near Pará how remarkably the track of these ants was worn down across a pathway and through grass, he informed me that he had observed them marching along that very track for fifteen or twenty years. The insects which do this are of course the neuters, which have tremendous jaws. They often swarm in houses at night, crawling over the supper table and carrying away fragments of bread and farina; and should any cloth or handkerchief be left on the ground, especially with anything eatable in it, it will be found in the morning cut in semicircular holes in every direction as neatly as if done with scissors. It is the female of this destructive creature that furnishes the Indian with a luxurious repast. At a certain season the insects come out of their holes in such numbers, that they are caught by basketsfull. When this takes place in the neighbourhood of an Indian village all is stir and excitement; the young men, women and children go out to catch *saiibas* with baskets and calabashes, which they soon fill; for though the female ants have wings, they are very sluggish and seldom or never fly. The part eaten is the abdomen, which is very rich and fatty from the mass of undeveloped eggs. They are eaten alive; the insect being held by the head as we hold a strawberry by its stalk, and the abdomen being bitten off, the body, wings and legs are thrown down on the floor, where they continue to crawl along apparently unaware of the loss of their



posterior extremities. They are kept in calabashes or bottle-shaped baskets, the mouths of which are stopped up with a few leaves, and it is rather a singular sight to see for the first time an Indian taking his breakfast in the *saüba* season. He opens the basket, and as the great-winged ants crawl slowly out, he picks them up carefully and transfers them with alternate hand-fuls of farina to his mouth. When great quantities are caught, they are slightly roasted or smoked, with a little salt sprinkled among them, and are then generally much liked by Europeans.

The next insect in the list is the *Termes flavicolle*, Perty; a large white ant common in the Upper Amazon. It inhabits holes in the earth about the roots of rotten trees, and is much sought after for food by the great ant-eater, *Myrmecophaga jubata*, as well as by the Indians. In this case it is not the winged female that is eaten, but the great-headed, hard-biting worker, and it is by means of his jaws that the creature is entrapped. An Indian boy going after "*cupim*" takes with him a calabash or a bottle-basket, and searches about for a nest. He then scrapes away some of the earth, and taking a long piece of grass inserts it as far as it will go, and on withdrawing it finds a row of ten or a dozen *Termes* holding tightly on to it; and he repeats this operation till he fills his basket. These insects are also eaten alive or roasted; but in this case it is not the abdomen but the enormous head and thorax which is devoured, as those parts contain a considerable mass of muscular matter. These insects have generally a bitter taste and are not much esteemed, except by the Indians themselves.

The edible Homopterous insect is the *Umbonia spinosa*, which swarms at certain seasons on the Inga trees, which are universally planted by the Indians near their cottages for the sake of the fruit, which is much esteemed by them. The insects fall upon the ground in great numbers, and the sharp spine on their thorax renders walking barefoot very disagreeable. This spine seems to render them very ill adapted for food, but when they first appear the whole body is soft and flaccid, and they are then collected and roasted in a flat earthen pan. They are not, however, so much esteemed as the other insects I have mentioned.

The next edible insect I shall allude to is the larva of a beetle, but of what species or genus I am unable to say, though it is probably a *Calandra*, as it is found in the stem of a palm tree. It is much swollen, and attenuated at each end; and is a rich fatty mass, which is eaten slightly roasted or fried. It is not by any

means so common in the Amazon as the other edible insects ; and in fact, I never saw it eaten, or ate it myself but once. It is called "*muxeina*" by the Indians.

The Apterous insect which is eaten by the South American Indians, more I presume as a delicacy than as an article of food, is a species of *Pediculus* which inhabits the heads of that variety of mankind, and is probably a distinct species from that of our own country. The method of capturing and devouring this insect is exactly the same as that which every one has seen adopted by the monkeys at the gardens of the Zoological Society. A couple of Indian belles will often devote a spare half-hour to entomological researches in each others' glossy tresses, every capture being immediately transferred with much gusto to the mouth of the operator.

The remaining annulose animal I have to mention is a singular species of earth worm. It has the body flat beneath, and the rings very hispid. It inhabits the gapó, or flooded lands, in the dry season ; and, when the waters rise, it ascends the trees and takes refuge in the hollow leaves of the *Tillandsias*, where it accumulates in great numbers ; and it is a singular sight to see an Indian fisherman climb up a tree and return with plenty of worms for bait. In every house these *Tillandsias* may be seen hanging, the leaves carefully tied together at the top to keep the worms from escaping should they get too warm or dry. When more are obtained than are wanted for bait they are boiled with fish ; and, though they look very disgusting and are intensely bitter, they are a favourite food with most Indians.

I am not aware of any other insects being used for food by the Indians of that part of South America which I visited, and trust that this short notice of them may call attention to the subject in other parts of the world.