

Preliminary Report of Small Mammal Fossils from the La Venta Fauna, South America

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The La Venta fauna is one of the most famous and richest middle Miocene vertebrate faunas known in the northern South America (STIRTON, 1953; MARSHALL & HIRSCHFELD, 1976). From the fauna a lot of kinds of primate fossils have been discovered since 1940s (STIRTON, 1951 etc.). From Kyoto University Primate Research Institute, expedition teams have been sent to La Venta badlands of Colombia several times since 1977, and a number of new primate specimens, including new genera and species, have been discovered (Kyoto University Overseas Research Report of New World Monkeys, 1979, 1981, 1983, 1984 and 1986; SETOGUCHI, 1985; SETOGUCHI & ROSENBERGER, 1985).

Here some other small mammal fossils are reported preliminarily. More detailed descriptions are in preparation now.

ORDER CHIROPTERA

Material: IGM-KU (Instituto Nacional de Investigaciones geologico-Mineras [INGEOMINAS]-Kyoto University) 82C1, right M¹ and IGM-KU 82C2, left M² (?), of which anterolabial corneris slightly broken.

Locality: Kyoto site, probably within the Monkey unit of the Honda Formation (FIELDS, 1959), in the Tatacoa desert, Huila Department, Republic of Colombia.

Description: The occlusal view is almost quadrate, though there are only three cusps; paracone, metacone, and protocone. Among them paracone and metacone are very crescent and rather higher than protocone, which is somewhat worn out. Metacone is slightly higher than paracone, and the anterior triangle, the anterior half of the ectoloph, is moderately smaller than the posterior one made of metacone.

The vertical notch is so deep that the ectoloph forms a folding sharp edge, that is, dilambdodonty. All these features are adapted to shearing for the insectivorous diet. At the narrow trigon basin there is a curious hairpin-like wrinkle, attributing to the way of wearing out of protocone.

The stylar area is not so much developed as didelphoid molars, but there are four stylar cusps observed; parastyle, "stylocone", mesostyle and metastyle (The homology of this "stylocone" is still obscure). Parastyle, which is rather worn out, is apparently conical and connects with protocone by the paracingulum-preprotocrista and with "stylocone" by an indistinct short ledge. "Stylocone", which is crescent and moderately higher than parastyle and slightly swells out labially, connects with paracone by a sharp preparacrista.

Mesostyle is apparently and curiously situated posterior to the vertical notch, and so the

confluence of the postpara- and the preparacrista and the edge of the labial groove shows X-shape. Metastyle is crescent and protrudes posterolabially, but does not connects with protocone by the metacingulum-postprotocrista as in parastyle by the paracingulum-preprotocrista. These four styler cusps are connected by a waving styler crest.

The basal cingulum is not present at all, and so hypocone is absent. This should be the most important character to identify these materials.

Crown dimensions of the materials are as follows:

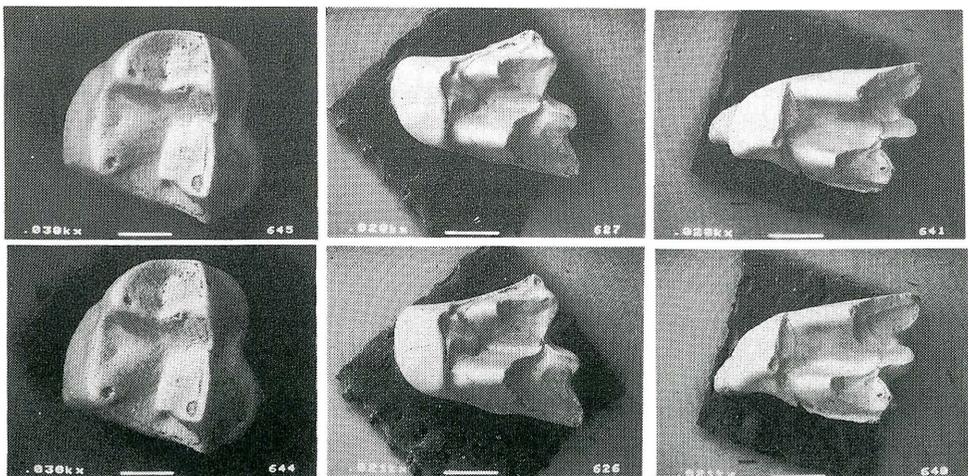
	IGM-KU 82C1	IGM-KU 82C2	
length	2.2	2.1	
width*	3.1	3.1	(mm)

*the tranverse length between the top of mesostyle and the base of protocone

Remarks: Because of its size and shape of the crown, they are apparently anterior molars of the insectivorous small mammals. And these materials have following important three characters. (1) The crown shows the typical brachyodonty with the sharp three cusps, and the ectoloph shows the remarkable dilambdodonty. (2) Hypocone is not present and, at the same time, no basal cingulum. (3) Styler shelf is not so much developed and the virtual notch reaches the buccal edge. Although by all these characters these teeth can be identified as bats, here we must examine the possibility of insectivores, such as talpid and tupai, and marsupials, such as didelphid. The formers have never discovered in South America as neither living nor fossil. The latter can not clear the third requirement.

On the other hand, styler cusps show the peculiar pattern; an independently conical parastyle, mysteriously high "stylocone" and curiously posteriorly situated mesostyle. Such a specialized pattern of the styler cusps should not be observed in any bat, including fossil bats. By these situations it must be appropriate to establish a new genus.

Although the anterolabial corner of IGM-KU 82C2 is broken and the patterns of the styler cusps are slightly different, the similarity of other basic characters shows that they should be included in the same species.



Small mammal fossils from La Venta.

Top pair: a chiroptera, right M¹, IGM-KU 82C1, ×15.

Middle pair: a chiroptera, left M², IGM-KU 82C2, ×15.

Bottom pair: a marsupial, right M¹, IGM-KU 82M1, ×20.

ORDER MARSUPIALIA

Material: IGM-KU 82M1 right M¹ (?)

Locality: Kyoto site, probably within the Monkey Unit of the Honda Formation (FIELDS, 1959), in the Tatacoa desert, Huila Department, Republic of Colombia.

Description: The crown morphology shows the quadrituberculous brachyodonty. Four cusps – paracone, metacone, protocone, “hypocone” – are almost equally high, but paracone is slightly higher than others. From paracone three crests descend; first anteriorly and connects with the paracingulum. Second crest, paraloph, descends lingually and disappears at the trigon basin. Third posteriorly, forming the ectoloph, and connects with the metacone through the obtuse notch.

Metacone also has three descending crests; first is the ectoloph connecting with paracone. Second lingually and connects with “hypocone” through the obtuse notch. Third posteriorly and then curves lingually with shaping a half-round postcingulum, which connects with “hypocone” at last. The postcingulum and the crest between metacone and “hypocone” encloses an apparent basin. From “hypocone” a steep crest descends anteriorly, and connects with the postprotocrista through the unsymmetrical obtuse notch. Protocone is situated at the anteroligal corner, and from it a low upheaval runs anteroposteriorly with disappearing at the base of metacone.

The quadratetrigon basin is surrounded by four cusps, forming a square in occlusal view. Anterior to paraloph there is an apparent paracingulum, which connects with preparacrista just anterior to paracone.

At the styler area there is a slight development of the styler shelf, especially at the lingual side of paracone, which causes the wideness of the anterior end. However, no styler cusp is observed.

The measurements of the material is as follows; the largest length along the ectoloph is 22.1 mm and the largest width is 22.3 mm.

Remarks: By its peculiar shape, it can be easily identified as caenolestid, Marsupialia. The brachyodont crown is quadritubercular and rather bunodont, which shows that its diet is insectivorous-omnivorous.

Living caenolestids are distributed along the west coast of South America as one of the relict, but all of their fossils have ever been discovered from Argentina but one from Bolivia (MARSHALL, 1980). This specimen is the first fossil of caenolestid from the La Venta fauna. The existence of this specimen at the La Venta fauna should suggest the phylogeny and the geological distribution of family Caenolestidae.

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REFERENCES

- FIELDS, R. W. (1959): Geology of the La Venta badlands, Colombia, South America. Univ. Calif. Publ. Sci., 322:405-444.
- MARSHALL, L. G. (1980): Systematics of the South American marsupial family Caenolestidae. Fieldiana: Geology, n.s. no. 5:1-145.
- SETOGUCHI, T. (1985): *Kondous laventicus*, a new ceboid primate from the Miocene of the La Venta. Colombia, South America. Folia primatol., 49:96-101.
- SETOGUCHI, T. & ROSENBERGER, A. L. (1985): Miocene Marmosets: First Fossil Evidence. Int. J. Primatol., 6:615-6225.