A NEW TRITYLODONTID FROM LUFENG, YUNNAN

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Several small reptilian skulls as well as a number of dinosaurian bones were collected from the Upper Triassic Lufeng Series by one of the present writers (Hu) during a field trip to Lufeng District, Yunnan in early 1957. During the preparation of these fossils it was noticed that there is a skull fragment of a small mammal-like reptile which at first glance looks quite alike that of *Bienotherium* known from the same general district and most probably from the same stratigraphical horizon. When the specimen had been carefully prepared it became evident that we are dealing with a new form of tritylodontid reptile. The present note is a preliminary description of the specimen.

Family Tritylodontidae

Genus *Lufengia* gen. nov.

Diagnosis: As for the genotypic species *L. delicata*.

Lufengia delicata sp. nov.

Type: Fragment including greater part of the frontal and posterior nasal region of a skull with well preserved upper cheek teeth of the right side and posterior of the palatinal bones. Geological Museum, Ministry of Geology. Catalogue No. V. 0009.

Horizon and Locality: Upper Triassic Lufeng Series. Heikopeng, Tahuoahsiang, Lufeng, Yunnan.

Diagnosis: A tritylodontid of very small size. Upper cheek teeth five in number, more or less uniformly constructed, with the exception of the last one; all the cheek teeth subquadratic in outline or slightly broader than long and with eight crescentic cusps arranged in three longitudinal rows, 2 in outer (labial) and three each in middle and inner rows. First cusp or tubercle of middle row much smaller, low and more widely separated behind from the posterior ones. Frontal and anterior part of parietal region of the skull flat and without noticeable indication of forming a median parietal crest.

Description: The specimen though fragmentary and badly cracked is well preserved enough to show some essential points of the general structure of the skull and the upper dentition. As the left side of the specimen had been slightly crushed and pushed backward the skull become asymmetrical in the dorsal and ventral views.

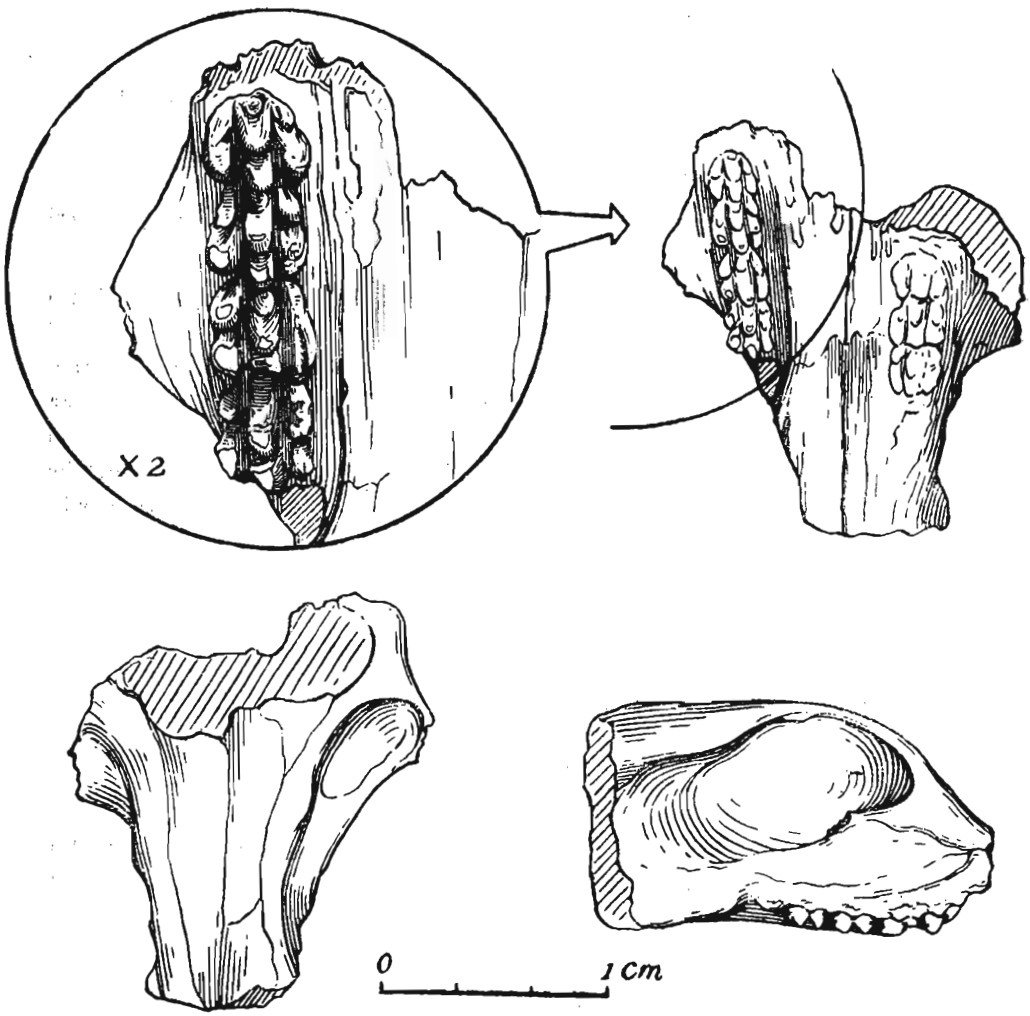

Fig. 1. *Lufengia delicata*, gen. et sp. nov. Sketch drawings of the type skull fragment. Upper——palatal views, ×6 (left), ×3 (right); Lower——top and lateral views (× 3).

Upper Dentition: The upper cheek teeth are of typical trilylodont type. The number of teeth on each maxilla is five. There is only very meagre possibility of the presence of another one, for of the fifth or last tooth on each side, the one on the right side was lost and the left one is still preserved in partially erupted condition, but it is much reduced in size and probably not functional. The four anterior teeth are well preserved on the right side and more or less of equal size. The tubercles or cusps of all the teeth are roughly cresentic. The first tooth is narrower anteriorly due to the reduction of the first tubercles on the side rows. The other three teeth are quite uniform in size and in construction and slightly broader than long. The first turbercles in the middle row of

each tooth as mentioned above is low, smaller and more widely separated from the following ones. In the inner rows of each tooth the first cusp is normally developed, while the posterior two cusps are crowded together and the last one is indistinct or completely undeveloped. The three rows of cusps are distinctly separated from one another by two straight longitudinal grooves which are very deep, clear-cut and parallel to each other.

Skull: As all the bones are much cracked and their suture contact obsolete, it is impossible to know the shape and extent of each element.

The skull is most strikingly noted by its small size and the flatness of the frontal and anterior parietal region. The whole preserved part of the skull top including the posterior of the snout forms a elongate flat area which extends as far backward as the point above the position behind the posterior of the transverse flange of pterygoid. There is no trace of indication on the preserved part in forming a crest posteriorly. The orbital process or protuberance is very low and comparatively posterior in position (at pc 4). The posterior of the frontal and the adjacent part of the parietal region behind the protuberance is not constricted and the upper sides of brain case run parallel backward with each other and with the plane of palatine on the ventral side.

The lacrymal (?) contact of the jugal is not clear. The zygomatic arch is not preserved, but as is indicated by its anterior root (at the fourth cheek teeth), is very thin, lightly built and probably not much expanded laterally.

In palatinal view the maxilla with the part as roots of the zygomatic arches, the palatina and the pterygoids are rather well represented. The palatina which form the secondary palate terminate posteriorly at the position of the fourth postcanine tooth. The transverse flange of the pterygoid which are damaged at the posterior, extends far backward for a distance of at least five millimeters behind the alveolous border of the last tooth.

Measurements (in mm.)

Sagittal length of the preserved part of the skull ..... 19 mm
Breadth, at the orbital protubance 7.4
Depth behind pc 5 10
Length of upper cheek teeth row (approx.) 10

Diameters of Upper Cheek Teeth:

	pc 1	pc 2	pc 3	pc 4	pc 5
Length	2.2	2.1	2.2	2.1	—
Width	2.6	—	2.4	2.6	—

Comparison

The above description of the specimen shows that the specimen from Lufeng is in

general quite similar to the tritylodontids in the structure of the upper cheek teeth. It is different in the number of teeth which is only five in *Lufengia* in comparison with fundamentally seven in *Bienotherium*, though there are but six in *B. minor*, *Oligokyphus minor* and possibly *Stereognathus*. Although the difference in the number of cheek teeth is not great enough to be of much diagnostic value, it seems interesting to note that in *Lufengia* even of the five teeth present the last or fifth one is much reduced. The number of cusp on each tooth is eight, that is same as in *Bienotherium*. However, the shape of the cusps are more crescentic and more regularly distributed than in the latter genus in which they are more peg-like and somewhat less strongly built.

As far as the comparison of the available parts are concerned, the new form from Lufeng in spite of its definite tritylodont affinity is decidedly different from the other known forms of the group. The most characteristic feature of *Lufengia* is in the structure of the skull. The flatness of frontal area as well as the part which most probably represents the anterior of the parietal is unique. It is uncertain whether a sagittal crest is present at all on posterior part of the skull which is not preserved. In correlation with this and the evident slenderness of the zygomatic arches it seems to indicate that in *Lufengia* the anterior teeth (incisors) are probably not so strongly developed as in *Bienotherium*. These along with its small size indicate that *Lufengia* is in these respects less specialized than both *Bienotherium* and *Oligokyphus*.

References

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EXPLANATION OF THE PLATE

Lufengia delicata gen. et sp. nov.

1, 3. Palatal views (× 1 & ×6);

2. Top. view (× 3);

4, 5. Lateral views (× 3).

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1

4

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