

NOTE ON THE MEITIEN LIMESTONE,
AN UPPER PERMIAN FORMATION IN THE NANLING RANGE*

By Y. Y. LEE (李毓堯)

(*The National Research Institute of Geology, Academia Sinica*)

Meitien is one of the largest villages in Ichanghsien, Hunan, and is situated about 20 km. west-southwest of the Ichang City. The well-known Chitienling (騎田嶺), one of the "Five Ranges" of the Nanling, stands on the north side of Meitien, at a distance of about 15 km. The northern area around Meitien is maturely denuded, consisting of rolling hills, being known as Tën-hsiang and Meitzuyao where numerous coal pits are worked; while on the south-western side there is a plain with alluvial deposits and on the southeast a precipitous hill of 150 m. above the stream bed known as Kaoshanmiao.

A river running from the northwest, passing Meitien toward the southeast and joining the North River in Kwangtung, is capable of carrying a boat of ten tons in Spring time. Through this river most of the coal produced here are transported to Kwangtung. Another small stream coming down from the northeast, almost parallel to the main road between Meitien and Ichang, cuts the valley along the junction of the Triassic rock and the Permian coal series. At the very junction, we noticed a limestone which the writer proposes to deal with in this paper.

The northwestern region of Meitien consists entirely of the Lungtan coal series which extends 1.5 km. northward up to the foot of Chitienling and more than 20 km. eastward to the main road between Kueiyanghsien (桂陽縣) and Lienhsien (連縣). The whole series is involved in a strong folding with a common pitch towards the south. Its thickness is very difficult to measure, but judging by the result obtained from the more distinct exposures in its neighbourhood, a rough estimate of not less than 500 m can be ventured. This coal series chiefly consists of alternating coal bearing shales and sandstones, in which the typical Lungtan coal series flora, *Gigantopteris* is found.

In the eastern area of Meitien is exposed a pink-gray, thin-bedded

* Received for publication in December, 1933.

limestone with a foliated character. Numerous oolites are present. It probably belongs to the Chinglung limestone of Triassic age, although no Palaeontological evidence is available. The hill, Kaoshanmiao, consists of Red Beds with conglomerates as their base, attaining a thickness of 60-70 metres. Red sandstones occur in their upper part. These beds strike eastwest and a dip at 85° to the south lying unconformably on the thin-bedded limestone.

Again, at a point about 600 m. north-northeast of Meitien 200 m. east of Leichiawan and 20 m. southwest of the Shihhu spring (the source of water

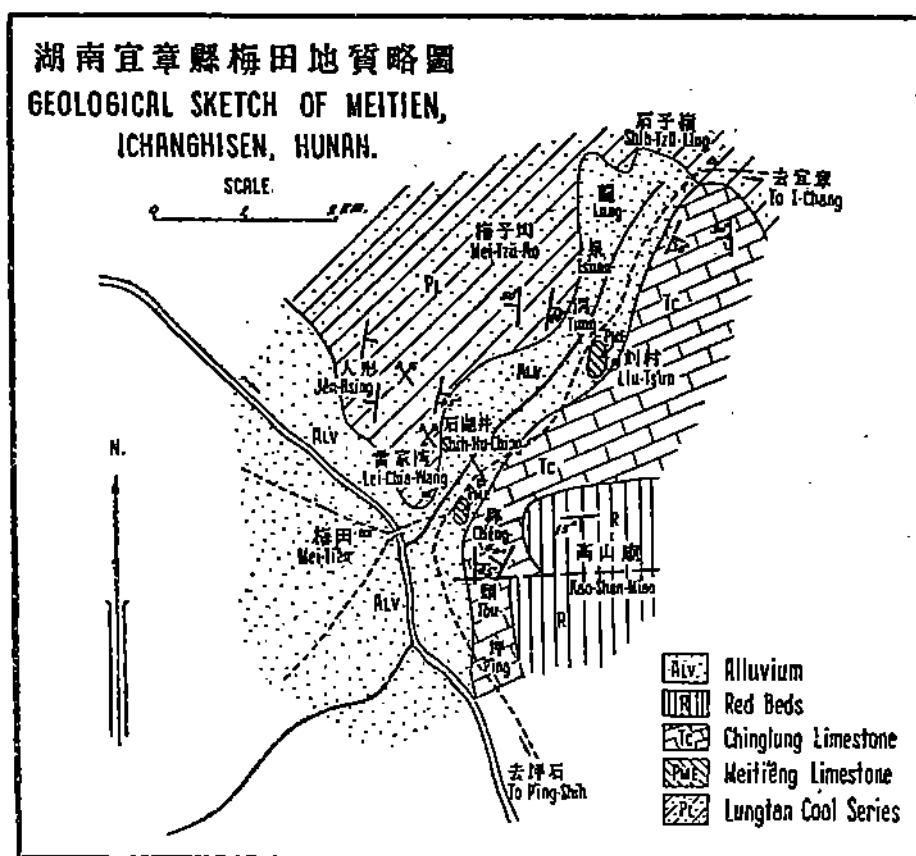


Fig. 1. Geological sketch of Meitien, Ichanghsien, Honan.

supply to the inhabitants), an isolated limestone block about 8 m. in length and 6 m. in width, crops out by the side of the stream running from the northeast. It is a light gray, massive limestone with crinoid stems, containing *Gallowaina meitienensis* Chen (sp. nov.).¹ This species is the only one noticed, but it occurs abundantly. Although a few other foraminifera sands are present, they have no importance. Owing to its massive structure and limited outcrop it is rather difficult to find out its dip; but in the rock crowded with *fusulina* or range themselves in layers which seem to strike N. 15 E. and dip 48° to the east. About 80 m. to the west of this limestone, following the main road to Meitien some gray shales crop out, and 50 m. further west, some sandstones are also exposed. Both of these belong to the Lungtan coal series, and they strike north-northeast and dip 30-40° to the east. These directions agree with the supposed structural position of the limestone. About 15 m. east from this massive limestone, the thin-bedded Chinglung limestone crops out with a local strike N. 60 W. and a dip at 40° to the southwest. It is possible that local fault exists between

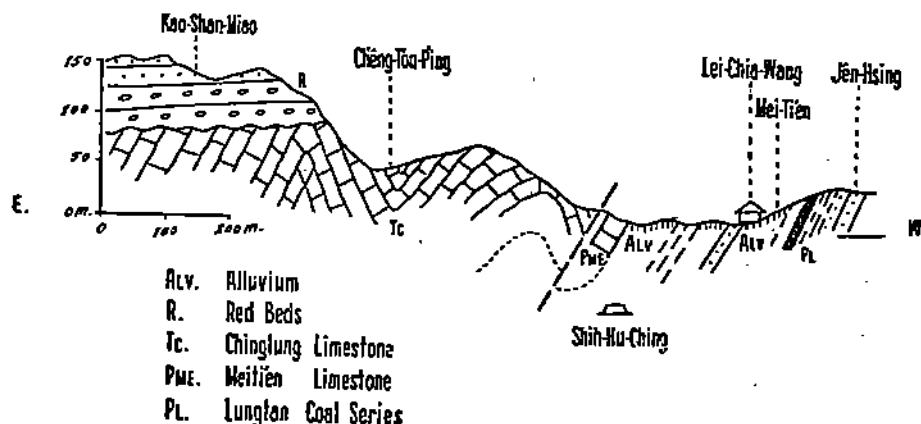


Fig. 2. Section of Meitien.

the two limestones, but the limestone to the west of Ch'engt'ouping shows the same trend as the Permian sandstone and shale, namely N.N.E.-S.S.W. On the whole, the Chinglung limestone, in the northeast of Meitien and the south of Shih-tzuiling forms a syncline pitching to the south.

1. A new species of Fusulinidae from Meitien Limestone by S. Chen.

Another isolated outcrop of this massive limestone is also noticed at the junction between the Lungtan coal series and the Triassic limestone in the Lungts'uantung Valley by the side of Liutsun. It is a reddish gray and thick-bedded limestone with a N.5W. strike and a dip at 20-30° to the east. These also agree with the structures of the strata above and below, but *Gallowaiina meitienensis* is not found here.

In spite of any local fault or faults, there is no room for any older formation which could have existed along the valley of Lungts'uantung, but the limestone between the Triassic and the Lungtan coal series.

The discontinuous nature of the limestone exposure may be due to an eroded surface upon which the Triassic thin bedded limestone disconformably rests. According to the fauna present and the nature of the deposits, it probably belongs to Upper Permian. We might call this limestone which rests on the top of Lungtan coal series the Meitien Limestone, since we first detected it at Meitien.

Comparing with the Permian development elsewhere in southeastern China, it appears to be in the same position as that of the Changhsing Limestone¹ or that of the upper part of Loping series.² But correlation receives no encouragement both from the palæontological and the lithological points of view. Consequently the Meitien Limestone may represent another facies of the Changhsing Limestone, or may form a new limestone above or below it. The final issue is yet to be decided.

1. Stratigraphy of China, by A. W. Grabau, p. 471-473.

2. The Permian Formations of Southern China, by T. K. Huang.