

REDEPOSITED LIMESTONE AND PALEOKARST IN THE ORDOVICIAN-SILURIAN IN NORTH PERAK

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A large part of north Perak between Grik and Pengkalan Hulu is shown to be underlain by the Ordovician-Silurian (GSM, 1985). Development projects and road constructions provided new and better exposures of these rocks. Redeposited limestone and paleokarst have recently been observed in these rocks. To the author's knowledge, these features have not been reported before.

Redeposited limestone

A large road cut 2 km northwest of Kampong Lallang on the newly realigned road linking Grik to Pengkalan Hulu exposes a sequence of chert, phyllitic shale and limestone. Phyllitic shale forms the

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dominant lithology. The sequence is folded into a broad open anticline. The limestone which forms two horizons of several meters thick each, have been broken into several boudins.

The limestone is predominantly composed of well-bedded micrites with shale interbeds. Two beds, which are composed of exclusively coarser limestones clasts of various shapes and sizes, show crude grading and poor sorting. Their thicknesses are laterally impersistent. The limestone clasts are of several varieties: dark algal biomicrite, dismicrite intraclasts, biosparite with large fossil fragments, dark micrites and crinoid stems.

The sequence of chert, shale and micrite is interpreted to have been deposited in a low energy, deeper water marine environments. However, the beds with the coarser limestone clasts suggest that the limestone clasts were derived from other limestone depositional environments and redeposited into the deeper part of the basin.

Paleokarst

Approximately 3km northeast of Kampong Lallang on the road to Felda Nenering, the road cuts through a thick, well-bedded micritic limestone sequence which is punctuated by a 5m thick shale with minor, thin sandstone interbeds. The limestone and clastic beds are concordant. The upper part of the limestone below the contact with the shale is distinctly lighter coloured throughout the outcrop. The top surface of this limestone is scalloped with some depression and cavity up to 1 m deep. Crusts cover part of this surface and are in turn overlain by the clastics. This undulating surface is interpreted to be a paleokarstic surface and the relationship of the limestone and the overlying shale is a disconformity.

Discussion

If the interpretation that the undulating limestone surface is a paleokarstic feature is accepted, then it would imply that this part of the Ordovician-Silurian basin was exposed between the times of the deposition of the limestone and the clastics. This begs the question on what was the cause(s) for the relative change in sea-level: vertical tectonics, fluctuation of sea level or a combination of both? In addition, one might ask if there is a relationship between the relative fall in sea level which led to the formation of the paleokarstic surface and the redeposition of limestone clasts in the deeper marine environment?

Answers to these questions are very vague now as no precise age determination have yet been made to these redeposited limestone and the limestone and clastic sequence below and above the paleokarstic surface. Precise dating and more field and laboratory studies are still needed before any satisfactory conclusions be made.
