

SHORT NOTES

BULLETIN NO. 3

Geological Society of Malaysia

March 1970, pp. 131 – 133

Limestone Occurrences in Johore¹

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Abstract: The first two known occurrences of limestone in Johore State are reported from the Sungei Sedili and Sungei Lenggong areas. The calcitic, locally carbonaceous limestone in the Sungei Sedili area covers about $\frac{1}{4}$ square mile, while the Sungei Lenggong occurrence is smaller. Both occurrences are fossiliferous, and fossils from the Sungei Sedili indicate a Permian age.

Until recently it was generally regarded that no limestone occurred in Johore. Paton (1961) wrote that "limestone has died out by a little south of Kuala Lumpur and no definite limestone is known from the southern part of Malaya." The first known occurrence of limestone in Johore was recorded in the Sungei Sedili area by the writer when he carried out geological mapping of Sheet 125 (Gunong Blumut) in central Johore in 1965–66. This paper presents a brief description of this limestone and of another recently discovered occurrence in the state.

Sungei Sedili

The limestone in the Sungei Sedili area, covering an area of approximately one-quarter square mile, occurs on the southeastern slopes of Gunong Sumalayang. This massive, somewhat lenticular limestone occurs within the thick series of argillaceous rocks of the Dohol formation (Rajah, in manuscript) and has been classified as the Sumalayang limestone member. This is the limestone mentioned by Gobbett (1968) as occurring in Ulu Sedili, but its known area is much smaller than suggested on his Figure 1.

The limestone forms an irregular surface. Bedding is often not clear, though obscure bedding is present in places and is generally discernible in the darker varieties. The general strike of the limestone beds is north-northwesterly, and they dip approximately 35° towards the west-southwest. Jointing is rare and the limestone is deeply pitted. Sedimentary structures have been generally obliterated due to the varying degrees of recrystallization.

In general appearance the limestone is often pale grey, but locally it is grey to almost black, because of the presence of fine carbonaceous and argillaceous matter. Carbonaceous or shaly bands, though rare, occur in places in the limestone. The limestone is fine-grained and often sparsely to moderately fossiliferous. Varying degrees of recrystallization, silicification and brecciation are quite common. Calcite vein-

¹Publication authorized by the Director, Geological Survey of Malaysia.

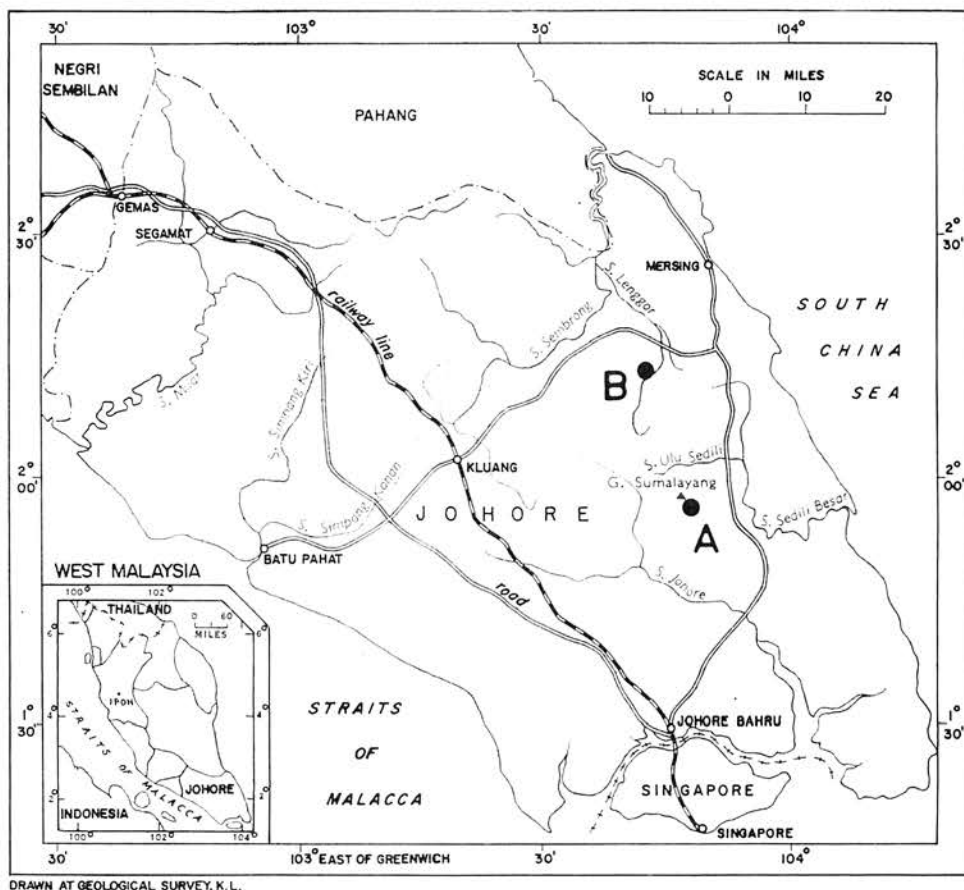


Fig. 1. Limestone localities in Johore. A: Sungei Sedili area; B: Ng Swee Mok tin mine.

ing, from microscopic to a thickness of an inch, is present in most of the rock examined.

Mineralogically, the limestone is nearly pure calcite, up to about 98 percent, and the magnesia content is generally low. In thin section it is characterized by its general crystalline texture and by a scarcity of silica. It is composed of a finely crystalline aggregate of calcite and is typically compact, and often cut by calcite veinlets.

Insoluble mineral residues, obtained by digesting the limestone in dilute hydrochloric acid, consist of very fine quartz grains, silicified fossil tests of foraminifers, clay minerals, sericite, carbon dust, zircon, iron oxides (goethite), ilmenite, leucoxene, rutile, pyrite, and a trace of green fluorite.

Fossils in the limestone are partially obliterated or less well preserved because of the varying degree of recrystallization. Dr. H. Igo (written communication, 1969) studied the fusulinids in the limestone and reported that "these fusulinids belong to

the subfamily Schwagerininae and they are probably *Pseudofusulina* sp. or *Parafusulina* sp.” Igo noted that the specimens were similar to *Parafusulina granum-avenae* (Roemer). Igo concluded that the age of the fauna, while not quite definitely determined, was probably the same as that of the Kampar limestone or slightly younger.

The age of the Kampar limestone is Lower Middle Permian (Ishii 1966). E. H. Yin (personal communication, 1969), who also examined the fossiliferous Sumalayang limestone, reported that it contained the genera *Pseudofusulina*, *Glomospira*, *Cribrogenerina*, *Climmaccamina*, and *Pachyphloia*. According to him the age of the limestone may range from Lower to Middle Permian, but the fossils point more strongly to Middle Permian.

Sungei Lenggor

The second limestone occurrence, found during the course of fieldwork, is in the mine hole of Ng Swee Mok Tin Mine, Sungei Lenggor in Sheet 118, just north of Sheet 125. Its extent is not as large as that of the Sumalayang limestone. It is light grey, fossiliferous and somewhat crystalline. The fossils present include crinoid stems, corals, and bryozoans (*Fenestrellina*). Although very little detailed work has been carried out on this limestone, it is believed also to be of Permian age.

Economic potential

The Sumalayang limestone occurrence could form an economic source of material for the manufacture of lime and cement, or could be used as road metal or even as a building stone.

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