Geol. Soc. Malaysia, Bulletin 13, December 1980; pp. 57–62

Some geochemical studies of the metaquartzites of the Jerai Formation, Kedah.

K.T. Chow,
Petronas, P.O. Box 2407, Kuala Lumpur

Abstract: The following types of metaquartzites from the Jerai Formation (Cambrian) can be distinguished—white metaquartzite, micaceous metaquartzite and calcareous-micaceous metaquartzite. The compositions of the white and micaceous metaquartzites overlap but the white variety appear to be generally more aluminous but less alkali-rich compared to the micaceous variety. The metaquartzites contain high K_2O comparable to granitic rocks and indicating that the probable source rocks are acid igneous rocks. The Rb/Sr ratios of the metaquartzites also are comparable to the Main Range granites which give rise to the thought that the source may be similar crustal rocks.

INTRODUCTION

Two formations are recognised in the Gunung Jerai area, the Jerai Formation and the Patani Formation by Bradford (1972). On the southern part of the Gunung Jerai area, lies igneous rocks such as granites, pegmatites, aplites and quartz veins. Within the Jerai Formation, there exists a type of rock known as quartz porphyry which has been interpreted to be of igneous origin (Chow, 1979; Lim, 1979).

The Jerai Formation which is probably of Cambrian age consists of metaquartzites and schists with a few calcareous lenses. The Jerai Formation has been correlated with the Machinchang Formation (Cambrian) in the Langkawi Islands but this is still uncertain because of lack of fossils in the Jerai Formation. Its thickness has been estimated to be about 1.5 km (Bradford, 1972).

The Patani Formation is believed to overlie conformably the Jerai Formation and is partly comparable in age with the Setul Formation of Langkawi Islands which is Ordovician-Silurian. The Patani Formation consists of 3 units: the argillaceous unit, the arenaceous unit, and the calcareous unit.

The ages of the granites and pegmatites were dated by Bignell and Snelling (1977) who suggested that the granites and pegmatites were probably emplaced during the Permo-Carboniferous period.

PETROLOGY OF THE METAQUARTZITES

The metaquartzites show variation in mineralogy and texture which give rise to various types. Three types of metaquartzites, based on lithology, can be distinguished. They are:

(1) white metaquartzite

(2) micaceous metaquartzite

(3) calcareous-micaceous metaquartzite