

Scientific application on bricks from Sungai Batu monuments

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Abstract: Evidence of Kedah Tua Kingdom since 6th Century BC was found by USM through excavation in Sungai Batu Complex. The evidences are proved by the sites of iron smelting workshops and monuments. There were 54 sites excavated and 33 of them are monuments functioned as ritual sites, jetties and administration buildings. Monuments showed an evidence of floor, stair, wall and corridor structures that are entirely built from brick material. A total of 24 brick samples from eight monument sites was analysed by XRD and XRF to know their composition. The X-ray Diffraction (XRD) and X-ray Fluorescence (XRF) techniques can determine the mineral content and trace

elements in qualitative and quantitative values. The results will allow us to know whether they used the local materials or conversely. The samples are from site SB1B (ritual site), SB1H, SB2B, SB1A (jetty sites) and SB1M, SB1N, SB1X, SB2ZY (administrative building sites). The results showed that they used local material to made the bricks. Therefore, the people in Sungai Batu Complex already have the skills and knowledge to find the locality and quality raw materials for making their bricks.

Keywords: Sungai Batu Complex, Bricks, XRD and XRF Technique