

Analytical Study and Deterioration of some Firing Pottery kilns in Tel Ayon Mousa in Southern Sinai: Case Study

Nagwa Sayed Abed El Rahim, Walid Kamel Ali EL ghareb*, Hamada Sadek Ramadan, Mohamed Salah

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Abstract: Firing Pottery kilns in tel Ayon Mousa in Southern Sinai are the most important archaeological sites in Sinai. The site has various kilns. It is an important industrial archaeological site for firing pottery in Sinai dating back to the late age. It was discovered by the South Sinai Antiquities Area in 1987, it had included many of dome kilns built of brick or limestone and mud brick. Examinations and analysis such as Polarized Microscopy "PLM", Scanning Electron Microscope with Energy dispersive X-ray unit "SEMEDX" and X-Ray Diffraction analysis "XRD" were carried out on some samples of building material kiln, slag and mortar. The research has proved that the firing pottery kilns were characteristic dome furnaces for the late era; it was reused in different periods from the Greco-Roman to the Islamic period. The research proved that the kilns suffered from various forms of deterioration such as phenomenon of cracking, fracture, flaking, salt crystallization, decomposition, dissolving, immigrating of cementing material or the mortar, as well as fall of some bricks, limestone and mud brick by various damage factors especially wind and rain being the archaeological site was a desert environment including direct and indirect deterioration factors. The research has also proved effect of the human factor on furnaces deterioration, especially the fire next to the kilns by the bedouin causing surface deformation, the kiln was smashed as the site was a military area during the war from 1967 to 1973. Most damage manifestations of archaeological kilns were due to physical, chemical and man-made deterioration factors. The research recommends restoration and rehabilitation of this archaeological site being one of the most important industry centers for Pottery in Sinai. The research also finds the need to raise the archaeological awareness of the residents and specialists as one of the tools for preserving and reviving pottery workshops in Ayon Mousa in Sinai, which was unique technological center of pottery manufacture in Egypt