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3D Scanning Documentation and X-Ray Radiography Examination for Ancient Egyptian Canopic Jar

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Abstract : Canopic jars are one of the vessels of funerary nature used by the ancient Egyptian in mummification process that were used to save the viscera of the mummified body after being extracted from the body and treated. Canopic jars are made of several types of materials like Limestone, Alabaster, and Pottery. The studied canopic jar dates back to Late period, located in the Grand Egyptian Museum (GEM), Giza, Egypt. This jar carved from limestone with carved hieroglyphic inscriptions, and it filled and closed by mortar from inside. Some aspects of damage appeared in the jar, such as dust, dirts, classification, wide crack, weakness of limestone. In this study, we used documentation and investigation modern techniques to document and examine the jar. 3D scanning and X-ray Radiography imaging used in applied study. X-ray imaging showed that the mortar was placed at a time when the jar contained probably viscera where the mortar appeared that not reach up to the base of the inner jar. Through the three-dimensional photography, the jar was documented, and we have 3D model of the jar, and now we have the ability through the computer to see any part of the jar in all its details. After that, conservation procedures have been applied with high accuracy to conserve the jar, including mechanical, wet, and chemical cleaning, filling wide crack in the body of the jar using mortar consisting of calcium carbonate powder mixing with primal E330 S, and consolidation, so the limestone became strong after using paraloid B72 2% concentrate as a consolidate material.

Keywords : vessel, limestone, canopic jar, mortar, 3D scanning, X-ray radiography
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