Shape determinants of electrochemical restoration in historical metal objects

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Abstract:

The electrochemical restoration process is one of the restoration processes, in addition to electrodeposition used to form or weld corroded or missing metal parts in historical metal objects with a thickness of layers that may reach several millimeters at a low cost and high quality. Also, the electrochemical restoration process is the ideal process for fabricating parts in some historical models in places that are difficult to reach by other traditional methods, such as fine nozzles, deep crevices, and so on.

However, practical applications of electrochemically restoring metal objects gave the proof that many objects with complex shapes are difficult to restore. Here, the role of the research is the answer on many inquiries related to the determinants of the shape of the product and related to the basics of the electrochemical restoration process.

Therefore, there is an urgent need to set many determinants that must be available in the form of the product to be restored by the electrochemical method. If these determinants are available in the form of the product, they will facilitate the restoration process to successfully perform the operation and obtain the desired results.

And by doing several experiments, it has been proven that one of the most important limitations is the absence of deep gaps in the parts that will be electrically restored, as well as avoiding overlapping surfaces with sharp or right angles in the places that must be repaired...etc.

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It has been found that the absence of attention to verify the presence of these limitations in the product form will negatively affect the results of the restoration process, although their presence in the product has a clear positive effect in the electrochemical restoration of metal objects.

research problem:

- The need to put clear formal parameters to guide those who perform electrochemical restoration to realize the importance of the shape characteristics of the product to be restored and to facilitate the restoration process for those in charge of it and to

research Purpose:

1. The knowledge of the most important defects and advantages of traditional restoration processes.
2. The recognition of the electrochemical restoration process, how it works, the solutions used and their nature, and the most important minerals that can be restored in historical objects.
3. Determination of the formal parameters based on which it is possible to know if the product is suitable for electrochemical restoration or not.

Research Hypotheses:

- for the shape of the product in the electrochemical restoration process will lead to:

a) Facilitating the electrochemical restoration process for those in charge of the operation.
b) Obtaining more positive results for the electrochemical restoration process.
c) Specifications are better than traditional restoration processes.

Research Methodology:

The research follows the descriptive analytical method.

Keywords:

Electrochemical restoration, Electrodeposition, Polymers, Shape determinants