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CLENING OF THE ANCIENT METAL OBJECTS

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Introduction:

Though more durable than organic materials, metals are not completely immune to deterioration. The main metals used in ancient times were gold, silver, copper, iron, lead and their alloys. Gold was often alloyed with silver and copper. The alloy of gold and silver is known as electrum and like fold has been used for fabrication of jewellery, beads and coins. It is almost as durable as gold. In India, during the Harappan civilisation, as early as 5,000 years ago, bth gold and silver were abundantly used for making jewellery. In those days, copper as well as the alloy of copper and tin, namely bronze, were well known. However, iron was introduced in India much later: about 1,000 years before Christ. It is not surprising therefore that a large number of metals objects and artefacts belonging to different periods of history are found in museums and private collections. Metal objects, at different stages of deterioration are often sent to the laboratory for conservation treatment. All metal objects except probably gold, corrode when buried in the soil. The is why most metal object obtained form archaeological excavations, or during a chance dig, acquire a rust or green or blue appearance. Their strength in that condition is greatly reduced and can be consolidated in a laboratory.

Gold:

Gold is considered a noble metal because, even if buried under the earth for a long time, it does not show signs of corrosion and, for this reason, does not require much attention by way of treatment. Cleaning with water and a mild detergent, or even soap, removes all dirt. The best cleaning solution for gold objects is reetha (saponin). The shells of reetha are soaked overnight in water, the clear solution is decanted and the object is immersed in it for some time. Light scrubbing with a soft cloth or soft brush usually cleans the object. Mending of broken, distorted or crushed gold objects is a task for the expert and should never be attempted by anyone else. Although gold is non-corrodable, it is quits soft and physical damage may easily occur in handing. Great care in handing and for storage is essential. Therefore, gold objects should always be kept wrapped in soft tissue paper, inside individual boxes so as not to rub against one another. If they are to be cleaned or polished, chamois leather or soft lint is advisable. Special care should be taken of objects and ornaments studded with jewels and decorated with enamel. Even slight pressure may loosen the jewels from the studs and may force them out. Loose cotton the fibres of which may get entangled in the studs, should never be used for cleaning gold ornaments.

Silver:

Silver, like gold is also regarded as a noble metal, but in certain types of atmosphere tends to get corroded. Silver salts, likes silver salts, like chloride and silver sulphide, are more stable than the metal and, there silver objects in contact with chloride and s ulphides tend to turn into the respective silver salts, Silver chlorides is grey or dirty white, so silver acquires this colour when in contact with chlorides. Silver sulphide is black and therefore a black film appears on the silver object with formation of sulphide. Such deposits of chloride of sulphide on silver can be cleaned with chemicals to protect them from further corrosion. At times this corrosion forms a beautiful thin layer on the object, enhancing its appearance. This patina, as it is called, formed through time, is a sign of age and has decorative value of its own. However, if it hides any details or inscription, then some silver cleaning solution like 'Silvo' or 'Silver Dip' is used for cleaning tarnished silver. The solution is applied on the surface with a cotton swab and then the surface is cleaned and polished with a clean soft cloth. Protection of silver objects on display is slightly more difficult, because on protective paper or sheet can be used. Preservative coatings applied on silver objects provide protection, at least to some degree, against tarnishing. A 3 percent solution of polyviny acetate, in sulphur-free toluene, makes a good protective coating. If a sliver objet has acquired a white, grey or green deposit, it is an indication of corrosion. In that event the help of a conservation expert should be sought. The conservation expert should be sought. The conservation expert will know how to remove the corrosive deposits and prevent further corrosion.

Copper:

Copper, and its al loys like bronze or brass, corrode easily, especially when buried in the earth. The soil contains many salts which change the metal into its various salts. Corrosive layers of its chloride cover the copper surface, rendering the metal friable and weak. These corrosive layers with chloride in them have the capacity to continue converting fresh metal into salt, even after it is not longer in contact with the soil. This continued corrosion of copper is popularly referred to as bronze disease. High humidity accelerates the development of bronze disease. Special show-case with provision for keeping silica gel inside are a useful way to control humidity. Bronze disease can best be treated by competent conservation laboratory.

Coins:

Coins form an important part of the collections almost all archaeological museums and private collections and so need particular mention. When found during excavations, they are invariably covered with soil which can be washed of. Further cleaning can be carried out by keeping them soaked for a few days in a 10 per cent solution of sodium sesquicarbonate, a 5 per cent solution of Rochelle salt. After the treatment, all traces of remaining chemicals must be remove by washing the coins in running water. A significant consideration in the cleaning of coins is the fact that in a coin, the inscription or the legend is extremely important. On no account, howsoever corroded it might be, should it be removed To avoid abrasion, each coin should

be wrapped in clean tissue paper, and placed in a separate envelope properly numbered and marked for identification, shallow wooden drawers, with slots to keep the coin in position, are best for their storage in museums.

Conclusion:

Iron and steel objects rust easily in moist climate. Excavated iron objects are often rusted, sometimes to extent that no or very little metal core is left in the objet. If an iron objet is already corroded, it should be given to a laboratory for treatment. Sometimes rusting is so advanced that if it si removed, the whole object or its important portions would be lost. In that case, the rust is slow conserved along with the object. Formation of fresh rust can be prevented, to a large extent, by the application on the surface of a water-repellant, like micro- crystalline wax. The object is either immersed in wax or wax is applied with a brush. Besides wax, some consolidates and varnishes can be applied on the object for imparting to them the required strength and protection from further corrosion. One of them is the polyvinyl acetate solution. Many iron swords, like damascened swords and the Malayan Kris, have on their blades fine patterns which are often lost because of corrosion. It is possible to restore these patterns by etching, but the process is risky because of acids used and, therefore, this treatment should be left to the conservation laboratory. Metal object, besides undergoing chemical corrosion, ars also very prone to physical damage. They should never be stacked one on top of another. Particular care is to be taken of gilded or silver plated objects. Gilding or silver plating is easily scratched or abraded. Small objects like coins or rings must be kept in small individual containers or envelopes. Labelled properly for identification.

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