

Mosaic: from Cement to Aeorolam

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Until the 1950s, when mosaics were detached from their original locations, they were placed on supports made of reinforced concrete. This was considered an innovative solution at the time. It is now well known that cement and iron have a deleterious effect on mosaics, as cement contains salts that lead to structural damage of the tesserae and bedding layers. Over time the iron in the concrete, as it rusts, through contact with water and humidity, causes the mosaic to expand so that it doubles its original size. Technicians worked for many years on lifting mosaics from their original locations. They were relaid on a new layer of reinforced concrete in order to facilitate display in national museums and protect them from theft and vandalism. Today many of these cement mounted mosaics, of differing sizes and shapes are on display in Museums, or in sites, or in storage. While some of them are covered, others are directly exposed to the elements, which are amongst the major aggressors of archaeological heritage.

A collection of panels of concrete mounted mosaics stacked and open to the elements



1. Daily testing on Mosaic floors demonstrated that many exhibited various problems, on the tesserae and the concrete layer levels. Technicians have acted with some urgency to reduce these problems. However, by using the wrong materials, which still contained iron and salts, they merely prolonged them.

A large, heavy detached Mosaic



2. Today, based upon recent research, there has been a return to the use of traditional materials, such as those utilised by the original makers centuries before.

These materials are: lime as an essential material, mixed with other natural materials such as sand, gravel, marble, brick and others that today are used for the in situ conservation of Mosaics.

The main problem of Mosaics placed on reinforced concrete still remains with many of them currently detached from their bedding layers. Unless immediate action is taken to stop the worsening of their condition, the result will be further damage and finally their extinction.

Damaged mosaic substrate, made of cement and iron: a mosaic in storage



a mosaic in situ



3. Specialists have found an alternative solution to the heavy and now obsolete mosaic supports which required many people to lift them. This lifting was the cause of many health problems such as back pain. The innovative form of support, named Aerolam, consists of industrial lightweight panels, which are easy to lift, and are designed around a honeycomb structure. We now use lime mixed with other binding materials over Aerolam. It is possible to save Mosaic floors from damage by using Aerolam supports, so as to facilitate transportation, storage and exhibition. Mounting mosaics on Aerolam supports requires the execution of several steps by technical specialists. The supply of appropriate materials is a key factor in the maintenance of our country's heritage. This is certainly the case in regard to mosaic floors kept in museums. Mosaic floors in archeological sites, are subject to more extensive damage, caused by climatic change and the deleterious presence of reinforced concrete and salts.

Detached mosaic in several pieces and poorly reassembled showing cut edges



4. At the aesthetic and historical levels, leaving mosaics on concrete supports affects negatively their state of conservation and their beauty.

For all these reasons, eradicating the usage of these materials, so damaging to mosaics becomes a top priority. To replace those supports, specialised technicians are needed. Appropriate materials and suitable tools and machines for lifting the mosaics and placing them in their archeological setting are also required.

The preparatory layers similar to those made by ancient mosaic creators have to be made. This has to be done using the basic material forming the classical mosaic floor: that is lime mortar.