Canadian Conservation Institute
Institut canadien de conservation

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Care of Argilite

Introduction

Since at least the early 19th century, the Haida have used a black slate found near Slatechuck Creek in the Queen Charlotte Islands, British Columbia, for making a variety of small items such as bowls, platters, and miniature totem poles (Macnair and Hoover 1984). This material, known as argillite, is fragile, and requires careful handling, display, storage, and transportation. The following guidelines are abstracted from Wainwright and Down (1985), to which the reader is referred for more specific information.

Characterization

Argillite is a carbonaceous kaolinite slate, a metamorphic rock that is distinctly layered in a way that parallels the bedding planes of the quarry. It is composed predominantly of clay minerals that have been subjected to heat and pressure over geological periods to form the present fine, uniform, and easily workable material.

Argillite is wet when quarried. If allowed to dry out too quickly, it has a tendency to split along its "grain." Occasionally, for larger argillite carvings, repairs must be made to splits in the rock *before* carving is done. Evidence suggests that early repairs of this nature were made with a fish glue. In recent times, natural splits are more likely to be repaired with epoxy resins and cyanoacrylates (e.g. Krazy Glue).

The surface of argillite sculptures may be modified after carving by the application of lamp black, boot polish, or a wide variety of other natural and synthetic oils. Pieces of bone, shell, and other materials are often inset as decoration.

Environmental Factors

Argillite adsorbs and desorbs water from the atmosphere, resulting in dimensional changes. The greatest changes in dimension are perpendicular to the bedding plane (i.e. across the "grain"), while the changes along the bedding plane are very slight. Continual expansion and contraction can cause deterioration of the layered structure. Stresses due to changes in dimensions are particularly damaging in composite argillite carvings where the "grain" of some pieces is at right angles to the "grain" of others.

Because water adsorption and desorption are greater at higher and lower humidities, it is advisable to maintain the relative humidity (RH) surrounding argillite pieces at 30–50%. A steady RH with low and slow fluctuations is best.

Argillite is not particularly sensitive to light, and may be illuminated brightly with relative safety. However, high light levels using incandescent lamps, particularly in enclosed display cases, must be avoided since the increase in temperature at the surface of the material results in a decrease in the local RH. Thus, heating during display hours and cooling when the lights are turned off can cause regular fluctuations in RH. Where doubt exists, determine the RH in the vicinity of a displayed object with a hygrothermograph, and take corrective measures as necessary.

Handling

Although one might assume that argillite is a strong material, it can in fact be easily chipped or split by mechanical shock or improper handling. Unlike many other artifacts made of stone, argillite carvings often have hidden structural flaws that render them prone to accidental damage. Because argillite carvings can become severely damaged in transit, judicious consideration must be given to travelling exhibitions of argillite. If travel is required, great care is essential during transportation. The use of humidity-controlled packing cases with adequate protection from mechanical shock will help to minimize the possibility of damage.

Cleaning

Before cleaning an argillite object, it is essential to determine if the surface has been modified in any way by coatings. Visually examine the surface carefully and conduct spot tests on unobtrusive areas with Varsol or Shellsol. If there is any difference in surface appearance or any change caused by the solvents, confine cleaning to light dusting with a small paint brush or a soft, lint-free cloth. Never use water to clean argillite, although slightly damp cotton swabs can be applied to localized dirt. These will pick up the dirt, but will not transfer moisture to the surface.

In some cases, adhesives that were used to repair splits in argillite prior to carving may have become yellow and unsightly. These stains can be removed, at least from the surface, with solvents. Toluene and methylene chloride are good choices, as these appear to have no effect on the argillite itself, although they may seriously alter the surface appearance if a coating has been applied to the stone. Acetone and glacial acetic acid, which may contain water, are not good choices and should be avoided. Do not undo glue joins unless it is absolutely necessary. If the join was made prior to carving, it is likely that the parts will not align exactly after the old glue is removed and the piece reassembled. It is far safer to surface treat the unsightly glue lines than to completely disassemble the piece. If doubt exists, consult a conservator or the Canadian Conservation Institute.

Bibliography

Macnair, P.L., and A.L. Hoover. *The Magic Leaves: A History of Haida Argillite Carving*. Special Publication No. 7, British Columbia Provincial Museum. Victoria, BC: Ministry of Provincial Secretary of Government Services, 1984.

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