TECHNICAL SECTION

PRESERVATION OF TWO ANCIENT OBJECTS

By T. R. Gairola

This short note by the Assistant Archaeological Chemist in the Museums Branch of the Department describes the skilful cleaning and preservation of a Tibetan painting and a bone object found embedded in clay in the excavation at Rupar.

1. TIBETAN TANKA

THIS Tibetan painting belongs to the National Museum of India. Its support is coarse cotton cloth as its fibre reveals on examination under microscope. The entire length is made up by joining breadthwise two pieces of cloth and laying thick layers of ground on both the sides. The principal colours are gold, yellow, red, white, black and blue. The pigments are sufficiently thick, and the painting, as a whole, is, therefore, heavy. One side shows two seated male figures facing a temple at the centre and heavenly bodies at the top. The painting is bordered by a row of seated figures on all sides. On the reverse there are writings at several places in both horizontal and vertical lines.

When acquired, the painting appeared glossy and there were several streaks of water-marks and patches of stains of organic nature, some of which were quite resistant. It was highly acidic because of the rancidity caused by a fatty material which seemed to have been applied on it on a previous occasion. An appreciable quantity of smoke had also accumulated on the surface. The thick, white paint was flaking, and the ground was also getting loose at some places. The painting consequently presented a glossy, pale, brownish look and had developed creases and cracks at many places; the colours were also very dull. The reverse showed a number of dirty black patches due to stains. Pl. LXXVII A shows the condition of the obverse before treatment.

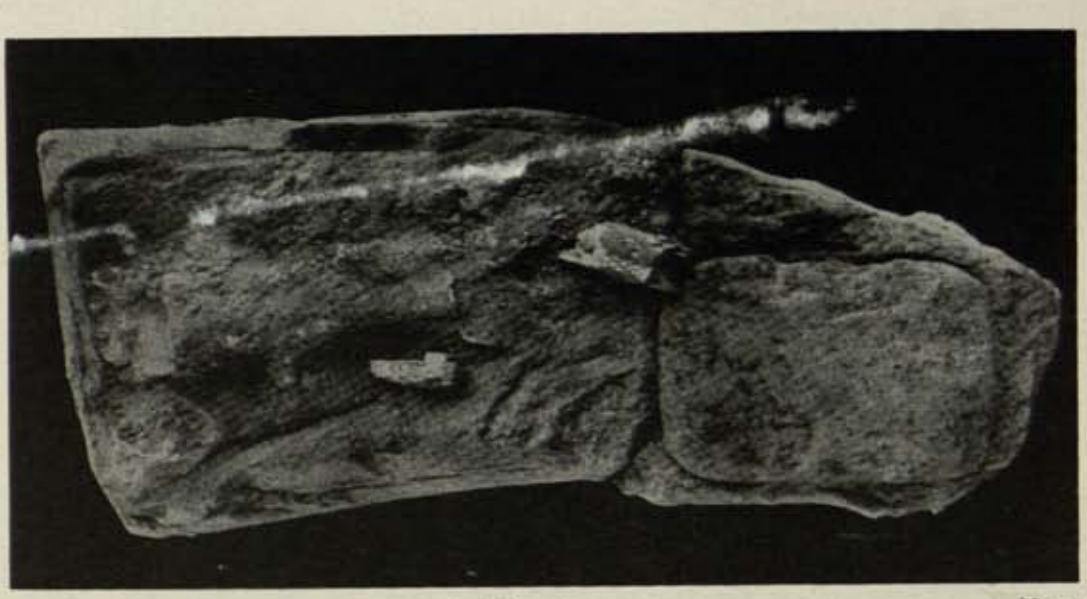
The preservation of the specimen involved the removal of stains both with organic solvents and with water. Creases and folds, located generally at the corners, were removed by making use of an aqueous alcoholic solution, followed by pressing. Stains of an organic nature, which were very resistant, were softened by repeated treatments with benzene and chloroform and removed with swabs of cotton both from the obverse and the reverse. After the treatment with these organic solvents the painting seemed to improve.

Water was found softening the white, yellow and blue pigments, which had, therefore, to be fixed with a five per cent methyl-metha-crylate solution before washing with water could be attempted to remove the water-marks. The painting was then washed with plain water in the usual manner and the acidity neutralized with a dilute ammonia solution, all traces of which were removed by washing thoroughly with plain water and testing the wash-liquid with litmus paper. Certain stains which still persisted had to be treated with pyridine solution followed by a thorough washing. During the course of treatment with aqueous solution it was noticed that the white pigment was coming off. The treatment had, therefore, to be stopped immediately, and the painting was dried thoroughly and the loose pigment fixed back with the fixative mentioned above. Both the sides had to be treated in the same way.

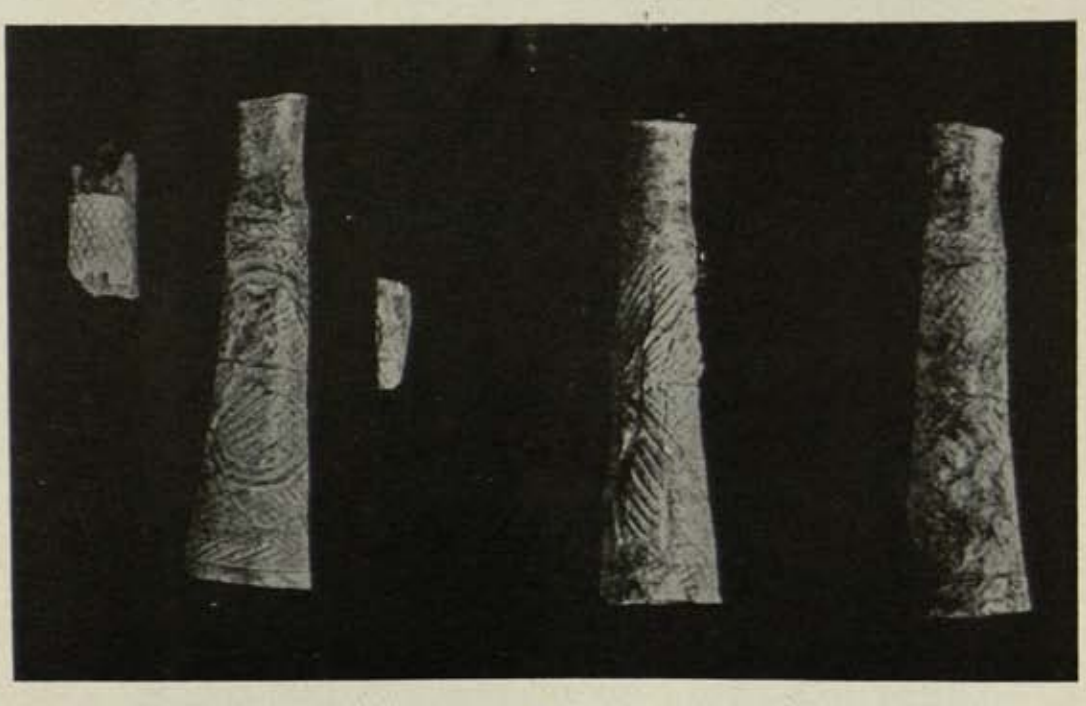
B

A

Tibetan tanka: A, *before treatment;* B, *after treatment* (*see page 192*). Size 41·7 × 36·7 in.



A



B

Bone object from Rupar: A, *fragments embedded in clay;* B, *fragments after treatment* (*see page 193*). A, $\frac{3}{5}$ and B, $\frac{4}{5}$

After the removal of the stains the painting was mounted on silk as usual and allowed to dry with strips all round, so that it could get well-stretched. Since both the sides had to be exhibited, it was mounted between perspex sheets joined together with a thick solution of methyl-metha-crylate and held in a wooden frame. Pl. LXXVII B shows the condition of the obverse of the painting after preservation and mounting.

2. BONE OBJECT

This bone object was recovered from the excavation at Rupar during the year 1953-54. As pl. LXXVIII A suggests, it was in fragments, which were embedded in a somewhat damp clay, necessitating its being kept covered with saw-dust for a long time, so that drying could take place very slowly and without causing any risk of breaking. The object, with the covering saw-dust, was allowed to dry slowly for about two months, and then the surrounding clay was removed with needles and a brush—a very delicate task, the surface of the object being porous and the inside spongy; its being hollow added to the difficulty. However, portion by portion, the object was detached from the clay-lump, till the whole unit was separate from the bulk.

After this a soft tooth-brush was used to remove the sticking mud, the last traces of which were softened with methylated spirit and a soft paint-brush. As even then the pattern on the object was not clear, a pointed wooden scraper was used to remove the mud from the grooves and indentations. The final cleaning was done with methylated spirit. The fragments were dried thoroughly and impregnated under vacuum with a five per cent methyl-metha-crylate solution in alcohol and toluene (50 : 50). Thus preserved, they were joined together with a six per cent perspex solution in toluene. The cracks were filled with hard paraffin wax tinted suitably with bitumen. The gaps were also filled with the same putty. Since wax is soft and is liable to run out during summer, repeated coatings with a one per cent methyl-metha-crylate solution were given, allowing sufficient time for the previous coating to dry completely before another one was applied, as otherwise the layers scale off. Pl. LXXVIII B shows the condition of the preserved specimen.

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