Conservation treatment of a school map by M. I. Tomasik for the Magnificent Maps Exhibition

By Isabelle Egan (Paper Conservator, Large Format Studio at the British Library)

A school map by M I Tomasik of European Russia, which was produced for the Nizhny-Novgorod All-Russia Exhibition of Industry and Art in 1896, was conserved in preparation for the Magnificent Maps exhibition.

Above: Unrolling the map

The map is a varnished lithograph measuring 2180 x 1940mm, printed on 4 equal-sized pieces of wove paper, lined with a cotton textile backing and inserted into split wooden rails top and bottom.

When rolled, the top of the map formed the exterior protective layer for the rest of the map. It would have been displayed with the map hung from a cord attached to the back of the rail. Due to the uniqueness, historical importance and original function of the map, the aim was to preserve the format and appearance as much as possible.

The map was in a fragile condition prior to treatment and the damage to the paper substrate at the top of the map was very different from the damage to the bottom half. This map had either been in a flood or had stood on a damp floor, which had allowed a colony of mould to flourish at some time. Much of the damage to the map is due to the stress and strains of hanging and rolling, chemical degradation from age, compounded by past mould attack in localised areas.

Above: Range of damage and mould area on the map before treatment

Mould spores are in the atmosphere and are capable given the right conditions, of setting up a colony wherever they land on a nutrient substrate. They produce enzymes to liquefy and break down the substrate and produce acids as they grow, hence damaging and staining the map surface. Moulds can also be harmful to health, so the mould had to be stabilised before any treatment could take place. After a risk assessment had been carried out, the mould was treated in an isolation room

using full personal protective equipment to remove as much as possible from the map surface.

The mould was further stabilised by applying a 50/50 mixture of alcohol in water. Testing had shown that the varnish on the map was soluble in alcohol, but because the map was treated from the back or verso, most of the varnish remained.

The gelatine adhesive between paper and textile lining proved an additional source of nutrients for mould. Moreover, the textile had degraded leaving it weak and no longer able to support the large map adequately. Consequently, the lining was removed and this enabled the map to be washed to stabilise the condition of the paper: washing reduces acidity resulting from chemical degradation in paper. Without the lining in place the extent of the paper damage was now also fully revealed: the general stresses of years of repeated hanging and rolling on rails had caused many cracks, breaks and losses of the paper. After splinting and facing the map to hold loose pieces temporarily together during treatment, the map was given a new lining using Japanese tissue and wheat starch paste to strengthen and support the overall structure.

Above: Verso after textile removal, showing weakened paper

Above: Mould area after treatment

A new dimensionally stable cotton fabric was added as a secondary lining, for additional tensile support due to the weight and size of the object. Additionally losses were infilled with Japanese tissue for flexibility and strength and toned to enhance the aesthetic appearance, and cracks were consolidated using fibre infills

The original poles were used to display the map but needed modification in order to do so safely. A hinge was devised to insert the edges of the map into the original rails without causing damage. A polyester

Above: The map ready for exhibition

film strip is used to discourage the rolling action of the rails to prevent damage from rolling and hanging occurring once more. Meeting the many challenges of the conservation of the map was a very satisfying experience and the finished map can now be viewed in the School Room section of the Magnificent Maps Exhibition until September 2010.