

## Tate AXA Art Modern Paints project (TAAMPP)

### Newsletter 2: May 2007

#### Welcome to the second Newsletter of TAAMPP!

Having introduced the aims of the project and team in Newsletter 1, this next instalment provides an update on the activities and advances up to the end of the first year of TAAMPP, from October 2006 to the end of March 2007. Most visibly, the surface cleaning treatment of the first of five acrylic emulsion paintings in the Tate collection was successfully completed: *Untitled 2/72*, by British artist Jeremy Moon. A small group of paintings were identified as requiring surface cleaning before they were next displayed via a survey carried out by Patricia Smithen, Conservator of Modern Paintings at Tate, during the first six months of TAAMPP.

In addition to the first conservation treatment, a series of "artificially soiled" (i.e. with simulated dirt applied to them) samples for evaluating both established and novel cleaning techniques have been created, as have two sets of forty acrylic coated canvases for two concurrent studies within TAAMPP.

These are further described below, followed by details of presentations and upcoming events and the announcement for the second painting to be cleaned.

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#### Changes to the Tate team:

At the end of November 2006, Tom Learner departed Tate to take up a new position as Head of Contemporary Art Research at the Getty Conservation Institute (GCI) in Los Angeles.

Tom's departure has reinforced Tate's ongoing collaboration with GCI on Modern Paints as well as TAAMPP. Tom remains involved with TAAMPP and has recently secured GCI funding for the imaging of acrylic emulsion paint films using Atomic Force Microscopy (AFM) in collaboration with Imperial College, London.

At Tate, Stephen Hackney, longstanding Head of Conservation Science, has become the temporary Manager of TAAMPP whilst Dr. Bronwyn Ormsby continues her work as AXA Art Research Fellow.

Jeremy Moon's painting *Untitled 2/72* was selected as the first cleaning treatment candidate for TAAMPP. This painting exhibited some of the common conservation problems associated with acrylic emulsion paintings including an overall dust and grime layer; embedded dirt; a fine white surface layer; and drip marks.

Patricia Smithen and Bronwyn Ormsby collaborated closely throughout the surface cleaning treatment, which was a three stage process. Initial work involved the characterisation of the materials present in the painting through scientific analysis and the documentation of Moon's painting technique and current condition of the work.

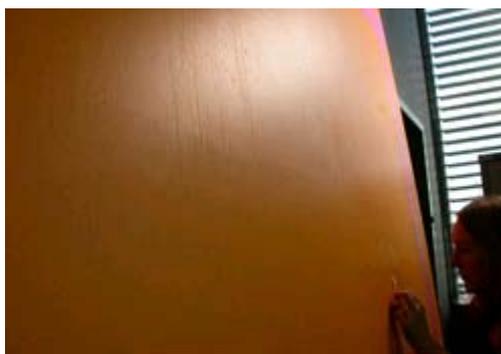
For this, a number of conservation and scientific tools were employed. These included the observation of the surface with photography, microscopy and ultraviolet and infra-red lights as well as colour and gloss measurement. Analysis of the paint media (acrylic emulsion) and surface layer chemistry were determined using chromatography and infra-red microscopy, and pigments were identified using a combination of microscopy (EDX) and infra-red microscopy. The paint media was confirmed as EA/MMA (ethyl acrylate/methyl methacrylate) copolymer which is consistent with the early form of acrylic emulsion paint first used in the United Kingdom in the early 1960's. The pigments - cadmium orange (orange paint) and an organic red (pink paint), with some titanium white mixed in and some barium sulphate added as an extender were quite standard for the time.

The second phase involved testing a number of potential cleaning systems on the paint films. The wet cleaning systems chosen were based on aqueous and aliphatic solvents, with factors such as pH, application method and conductivity controlled. After rigorous testing, the solution decided upon was aqueous, as it removed more of the drip mark remnants and surface dirt than any of the aliphatic solvent systems. The treatment was monitored with microscopy and UV light examination. Cleaning swabs were analysed for their surfactant content (a component of that paint that migrates to the surface of acrylic emulsion paint films) by a chromatographic technique (ESI-MS) carried out by colleagues at the FOM Institute for Atomic and Molecular Physics, Amsterdam, as well as infra-red microscopy at Tate. Details of the treatment and analytical results will be published in academic papers in 2007 (October) and 2008 (September).

The final stage of the treatment involved reassessing the painting surface for changes, including colour (no change) and gloss (a slight increase in gloss resulting from surface dirt and surfactant removal), which concurs with previous research. The painting now looks far more vibrant (the accumulation of surface dirt results in the greying of colour), and Moon's subtle brushwork is now more visible. The drip marks have been removed and as a result of the treatment, the painting is now being enjoyed as part of an exhibition of Jeremy Moon paintings at Tate Britain in Galleries 043 and 048 that will be on display until August 2007.



Jeremy Moon's *Untitled 2/72* after conservation treatment. Photo: Tate  
© Estate of Jeremy Moon, courtesy Rocket Gallery, London.



Patricia Smithen, Conservator of Modern Paintings at Tate, surface cleaning *Untitled 2/72*  
Photo: Tate  
© Estate of Jeremy Moon, courtesy Rocket Gallery, London.

## Other research:

### Varnishing acrylics:

One of the possible ways to prevent the accumulation of surface dirt on acrylic paintings is to apply a coating/varnish to the paint surface to act as a barrier to dirt and dust. However, very little research has been carried out on the varnishing of acrylic paint films and even less on the subsequent removal of varnish layers once they become unacceptably discoloured/fail.

To explore this problem, a series of forty canvases were prepared using titanium white and phthalocyanine green paints from two leading manufacturers. The majority of the canvases have been coated with one of ten types of varnish, ranging from commercial to specialist conservation products. Over the next two years, these samples will be subjected to accelerated ageing regimes to simulate natural ageing over fifty years in a museum environment, and range of optical and chemical assessments will be carried out to evaluate how the varnishes age, particularly with respect to changes in colour and removeability.

### Dust accumulation on acrylics:

A series of forty-eight canvases were produced to help determine whether acrylic emulsion paints accumulate surface dirt and dust faster than other paint types. The paints tested include the same two brands of acrylic emulsion, as well as the equivalent white and green pigments in artists' grade oil, water miscible oils and alkyd media.

To date the canvases have had preliminary colour and gloss measurements and will be analysed with infra-red surface analysis and microscopy before they are displayed to accumulate dust. Once displayed, they will be periodically monitored using the same group of techniques.

### Characterising acrylic primings:

To complement previous and concurrent research being carried out at Tate on the characterisation of acrylic primings/ghesso layers, a series of analyses were carried out to assess differences in the physical and optical properties of acrylic gessos compared to titanium white paints. This includes mechanical testing carried out by Eric Hagan (Deborah Loeb Brice Doctorate Fellow at Tate), in addition to analysis carried out by the AXA Art Research Fellow. The results will be disseminated at the ICOM-CC Paintings Working Group meeting at the British Museum in London, June 2007 (see Upcoming Presentations).

## Presentations - October 2006 to March 2007:

- 19 October 2006, Bronwyn Ormsby presented at a roundtable discussion organised by AXA Art France at Christie's, Paris
- 26 October 2006, Bronwyn Ormsby presented at a roundtable discussion organised by AXA Art Spain at Reina Sofia, Madrid
- 16 January 2007: Bronwyn Ormsby presentation a lecture to the Decorative and Fine Art Society in The Hague
- 17 January 2007: Bronwyn Ormsby presented two lectures to ICN, Amsterdam

## Upcoming Presentations:

• 1 June 2007, Bronwyn Ormsby will present a paper at ICOM-CC Working Group Paintings: Scientific Study, Interim meeting May 31st - June 1st 2007: Preparation for Painting: the Artist's Choice and its Consequences at The British Museum, London, entitled 'Comparing titanium white acrylic emulsion grounds and paints – characterisation, properties and conservation' by B. Ormsby, E. Hagan, P. Smithen, and T. Learner.

Please contact Frances Fogel of AXA Art UK ([frances.fogel@axa-art.co.uk](mailto:frances.fogel@axa-art.co.uk)) for further details

## The second painting to be cleaned:

### *Portrait of Brooke Hayward by Andy Warhol (1973)*

As part of TAAMPP, Tate is assessing and completing appropriate cleaning treatments on five acrylic paintings in Tate's Collection. The next painting to be surface cleaned will be Andy Warhol's *Portrait of Brooke Hayward*, painted in 1973. The painting consists of 4 square canvases at ~ 1m x 1m each. The paint layers are very matte and quite lean compared to those of the Moon painting with a fine layer of ingrained surface dirt and some grime on each. In addition, the priming layer is an alkyd paint (not acrylic), which may make the work more prone to cracking, as alkyd paints are not as flexible as acrylic emulsions. The differences in medium content and the alkyd ground may necessitate a different approach to cleaning.

To assist in the evaluation of the cleaning treatment of the Warhol painting, Bronwyn Ormsby has made a successful application to MOLAB, which provides access to portable non-destructive instrumentation through the support of the EU within the 6th Framework Programme (Contract Eu-ARTECH, RII3-CT-2004-506171). MOLAB will be assessing the Warhol paintings during the week 9-13 July 2007.