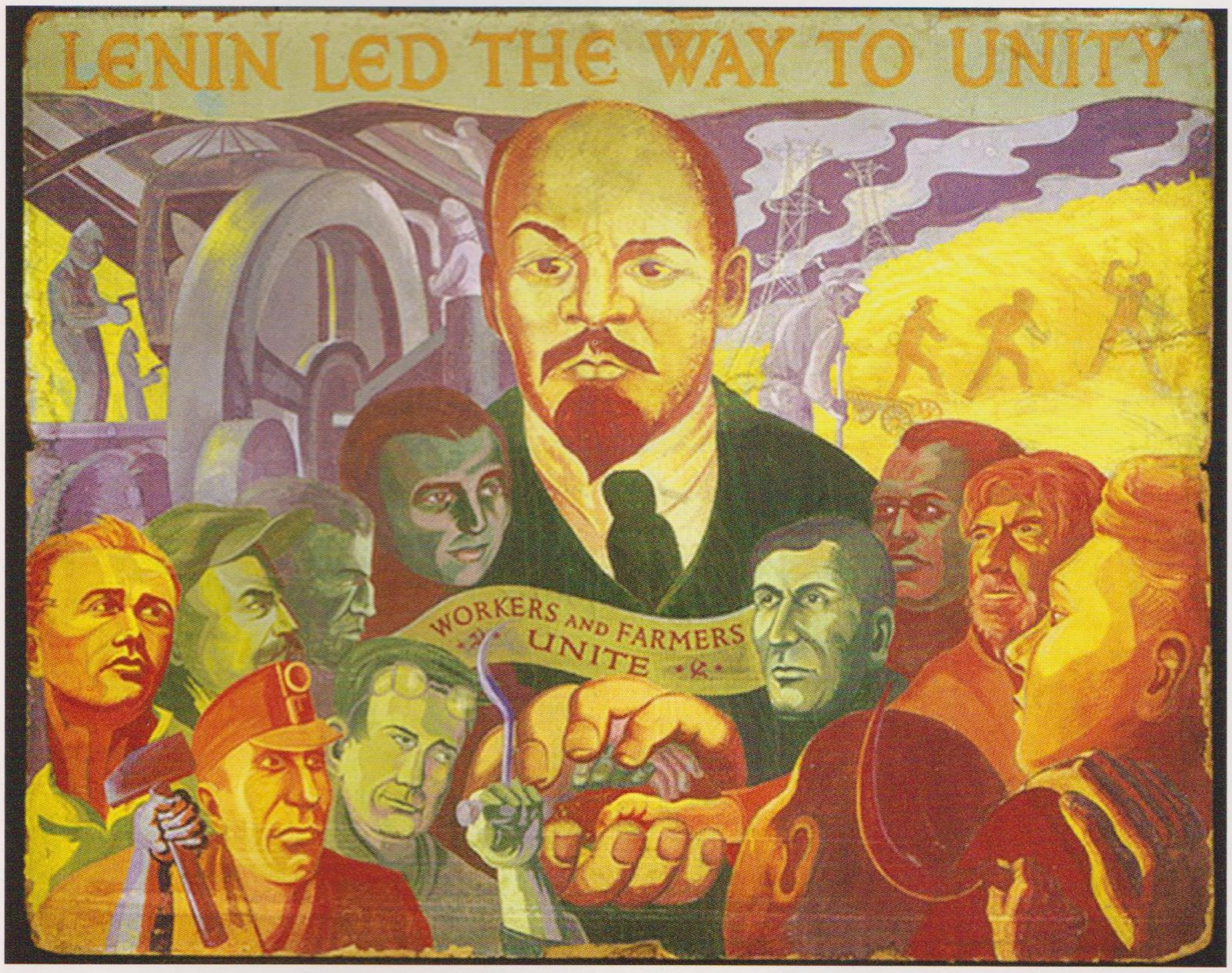
Argyro Chiliadaki and André Page

A New Zealand Communist Party Mural

Poster Paints on Large Format Fibreboard



1
Panel 5 before treatment

General information

The Communist Party mural was selected from the collection of the Alexander Turnbull Library as one of my main tasks as a Getty Grant Program Intern at the National Library of New Zealand, 2001–2002. The reasons for choosing it were its poor condition, an inadequate storage system that left it vulnerable and the challenges presented by the unusual material.

The New Zealand Communist Party commissioned Judy Evans and her father Guy Harding about 1944 to paint a set of panels to "promote the war effort and the Party's ideals"[1] and to decorate three walls of the main room[2] of the offices at the Unity Centre in Wellington. Initially, the mural consisted of ten large-sized (up to three meters long) Pinex panels, low-density fibreboard painted with poster paints[3]. The original concept had been on a smaller scale; the final idea was drafted on the panels, most likely, with charcoal. The Pinex sheets were sized in both sides and then painted with poster paints[4].

Both artists were influenced by the frescos of Mexico's great muralists such as Diego Rivera and their revolutionary public art[5].

After the war, the communist party went into decline and Unity Centre eventually had to close down. The mural was first stored in a building opposite the Centre, and then track of it was lost. In 1975, the Library commissioned one of its employees (Rona Bailey) to trace the mural and after a good deal of search, nine out of ten panels were located in an old house in Wellington[6]. It was then that, on behalf of the trustees of the Unity Centre and the approval of the artists, the panels were formally handed over to the Alexander Turnbull Library. What happened to the mural in the preceding 15–20 years remains unclear.

Objectives of the Internship

The aims of the internship research project, which was supervised by André Page, Senior Paper Conservator, were threefold:

1. To investigate the materials of the panels and to devise a customised treatment proposal for all of them.
2. To treat one of the panels using the proposed treatment method (Figure 1).
3. To design a storage and display system.

Investigation involved interviewing the artist Judy Evans and discussing the context in which the panels were created[7]. Technical analysis, including

2

2
Detail of staining

3
Detail of staining

4
Detail of staining

3

4

wood fibre identification, cross-sections of paint layers, microscopic examination and light-reflectance measurements on mock samples were undertaken.

For conservation treatment, experimentation and improvisation with basic conservation techniques were required in order to meet the objective. Testing, which preceded all the stages of conservation treatment, was essential in order for us to decide on the most appropriate technique of cleaning, stain removal, filling in of missing areas as well as choosing the best consolidation media for securing the flaking paint layer.

Description of Materials

Pinex

Low-density fibreboard is used widely as insulating board and is commonly referred to (in New Zealand) by its trade name Pinex. Over time, some changes have occurred in the manufacture of the board, but generally it has remained the same.

The manufacturing company's handout outlines that nowadays raw materials are obtained by flaking or chipping the wood (Pinus Radiata). For fibreboard, the chips are further reduced to wood fibre with the aid of steam to soften the wood. Starch adhesive as well as different additives are added before the board forming operation, depending upon the final product. A pulp mat is formed which subsequently is mechanically de-watered by wet-pressing. Then the mat is cut to size before being dried into insulating board. The dryer is steam and natural gas heated to operating temperatures around 150–170 °C[8]. Nowadays 96 % of the final product is wood fibre, 2 % starch that binds the fibres, 1 % wax for moisture resistance. Alum is sometimes added[9].

As it was also suggested, back in the 1940's, the wood used would have been solely pine, and most likely no chemicals would have been used, but maize starch. Therefore, the bonding would have relied mainly on the inherent lignin, starch and hydrogen bonding.

During drying, bonding occurs through the interlocking of the fibres and the ingredients inherent in the wood material itself[10].

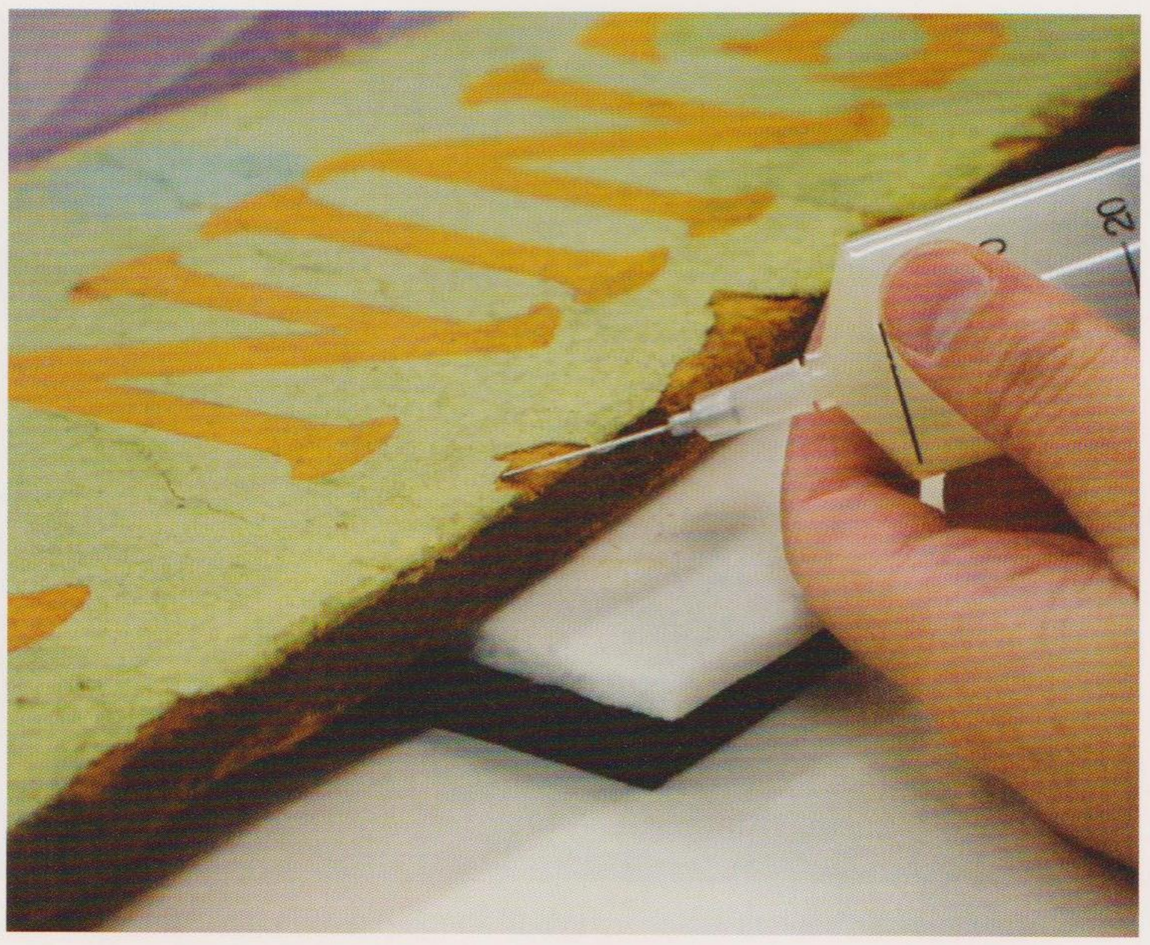
Poster Paints

Poster paints are water paints sold in jars and contain synthetic organic pigments and simple or cheap binder formulations, such as gum Arabic or modified water-soluble starch such as dextrin[11]. Ordinarily they also "contain considerable amounts of inert pigment or filler for they are essentially cheap products. They are widely used in commercial art and in educational work. Although they are considered inferior to other painting media, they fulfil their own requirements. There is nevertheless a difference in quality and permanence between the cheaper and more expensive brands"[12].

Bibliography

– AIC, Consolidation/Fixing/Facing, Paper Conservation Catalogue, 1988
– Arnold, Susan, "The technology of poster paint". In: Modern Works – Modern Problems? Conference Papers, The Institute of Paper Conservation (IPC), 1994
– Evans, Judy, Bailey, Rona, The Unity Centre Murals. In: Sites: A Journal for Radical Perspectives on Culture, Issue No. 16, 1988, pp. 71–72
– Fairclough, Sophia, Acrylic and Poster Paint: Two Case Studies of Works by Sam Francis and Roger Hilton. In: Modern Works – Modern Problems? Conference Papers, IPC, 1994
– Feller, R. L., Wilt, M., Evaluation of Cellulose Ethers for Conservation. In: Research in Conservation, The Getty Conservation Institute, 1990
– Fyfe, Judith, Manson, Hugo, Oral History and How to Approach It, National Library of New Zealand Te Puna Matauranga o Aotearoa, 1994
– Kemeys, K, "FWP Penrose History and Manufacture Processes" Handout and Copyright Forestry Industry Training Education Council, 1998
– Methocel, Cellulose Ethers, Switzerland, Dow Publication, 1999
– Minson, Marian, Curator of Drawings and Prints Department, ATL, Report on meeting with Judy Evans 1988
– Simpson, Tony, Soviet Realism. Too Real for New Zealand? On Guy Harding. In: Affairs Magazine, April 1973, pp. 15–17
– Stroebel, L., Compton, J., Current I., Zakia, R., Basic Photographic Materials and Processes, Focal Press, 2000

5



6

Condition Report

The condition of the panels was rather poor and unstable, suffering from physical deterioration due mainly to their previous handling and display, having been exposed to direct sunlight, smoke and fumes from the kitchen situated off the main room.

Due to its nature the Pinex board is very dry, brittle and frays with minor handling. Obvious areas of damage are the corners and edges where both the board and paint layer have been affected. Weakness is also associated with the adverse effects of acids from the original manufacture of fibreboard. Warping of the boards is apparent. Dents and cracks are visible throughout the mural, however some of the impressions must have been there since manufacture and the artist painted over them[13].

Most of the panels show considerable staining. Water (or other fluid) in combination with grime and soluble degradation products caused staining in the panels in the form of dribble lines and tidemarks that often run in different directions on the same panel (Figures 2, 3, 4). Therefore, one can assume that the panels were turned around whilst in storage in the shed. On the verso, these lines are well defined with dark brown edges.

On some panels, the surface has a certain gloss due to the size used to prepare the panels. This shine is distinctive in various areas and on the verso as well.

The paint layer, which is relatively thick and brittle – an appearance associated with the nature of poster paints – shows a significant amount of cracking and numerous tiny air bubbles are apparent in various areas. Flaking of the paint layer is noticeable, especially on heavily built areas of colour as well as abrasions and general fading (Figure 5). Considerable amount of surface and embedded dirt is visible, along with particulate matter, including some spider webs.

5
Detail of cracking and flaking of paint

6
Detail of stained area shown in Ill. 2 after stain removal with first method

7

8

9

7
Stain removal treatment, Step 1

8
Stain removal treatment, Step 2

9
Stain removal treatment, Step 3

The object of my treatment was panel Number 5 in the sequence. Its title along the top end is "LENIN LED THE WAY TO UNITY ...". It is one of the four smallest panels in the series with exact dimensions of h 1215 mm x w 1528 mm and a thickness of 12–15 mm. Its condition on receipt presented all the characteristics mentioned above.

Conservation Treatment

Dry Mechanical Cleaning

In the case of the panel, different cleaning methods were tested. However, they were thought to be rather abrasive and could cause fibre and media disturbance. Most of the surface was dusted with a wide soft bristle brush and the rest of particulate matter was removed with a vacuum cleaner. On the verso, a brush with relatively hard bristles was used to remove loose particulate matter in combination with a mini vacuum cleaner.

Stain Removal

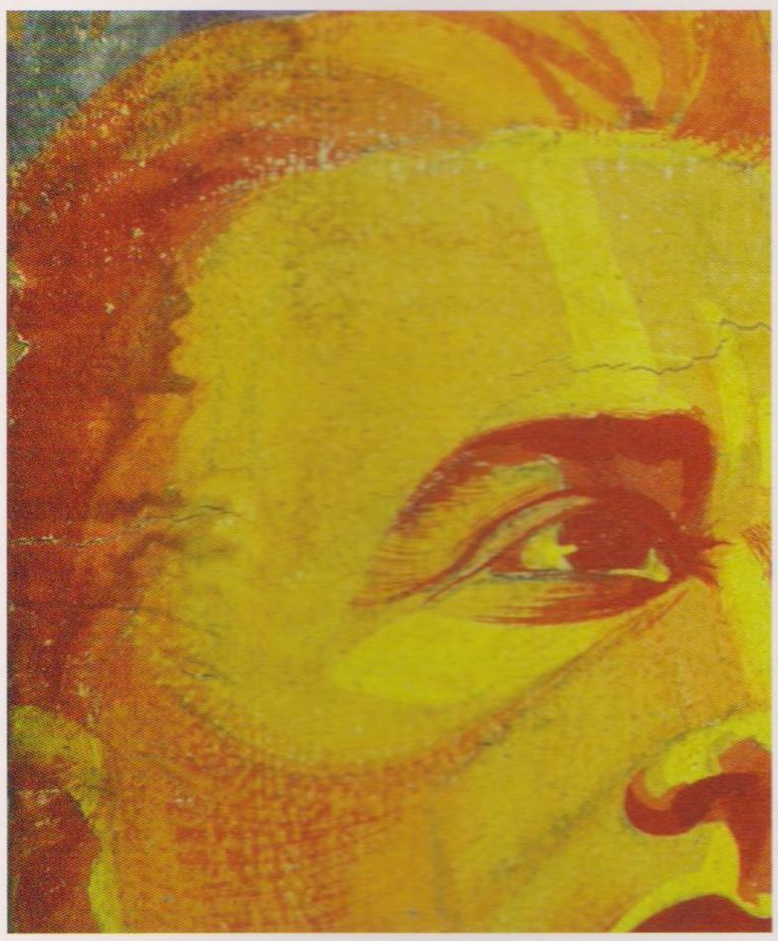
A stain removal treatment was fundamental in the overall treatment procedure since the staining was the most extensive and disturbing damage on the panel. However, as with dry cleaning, it was restricted to the most stable areas and was avoided where the paint adhered weakly to the substrate. Spot testing proved that the colours were not readily fugitive in water[14], ethanol and acetone, but they were somewhat soluble especially under pressure.

Research and consultation with fellow conservators helped identify a starting point in what proved to be a rather time-consuming experimentation process.

Different techniques were applied and ruled out:

1. Application of moisture using an ultrasonic humidifier and heat (tacking iron) through Reemay and blotters was not successful because it pulled the paint layer.
2. Local application of solvents by brush along tidelines and then application of heat through blotters had minimal effect. Varying proportions of H_2O-ethanol (1:1, 2:1, and 1:2) were tested. Acetone did not seem to have any effect.
3. Application of poultice using ethanol and wheat starch or Fuller's earth did pull some of the staining but at the same time pulled the paint layer. Powder was removed with a vacuum cleaner.
4. Application of water and paste through a number of layers of tissue with the aim to pull the stain gradually towards the upper layer of tissue showed great potential. Although the first trial resulted in paint loss, it was felt that a variation of this technique would be successful.

In more detail, André Page suggested applying wet to moist layers of tissue one on top of the other to create a "drying bridge". Full wetting of the first layers of tissue with water was followed by layers of tissue applied with thin starch paste. Ideally, the



10

11

gradual reduction of moisture in each layer of tissue would result in pulling the stain up into the drier layers of tissue.

Experimentation with this first method included the following:

The concentration of paste applied, the nature of paper used, the number of layers applied, and variation in the number of "water" and "paste" layers.

This technique worked really well on some purple and orange areas along the central left end, where it drew out the staining without paint loss (Figure 6). However, in more fragile areas of colour, wheat starch proved to be too strong for the paint layer therefore a different approach was required.

Testing procedures proved that application of water alone brushed on with a soft bristle brush through two or three layers of tissue (Step 1) and application of heat with a hairdryer (Step 2) pulled most of the staining as well as surface grime and other discoloration onto the tissue (Step 3) (Figures 7, 8, 9).

Variations of the quantity of water and interleaving layers of tissue depended on the thickness and the fragility of the paint layer, the nature of the staining and the quantity of the debris.

During application of water, it was important that all paper wrinkles were eased out to ensure even stain-reduction.

Enough water needed to be applied at this stage to succeed relaxation without having to apply any pressure with the brush, since the slightest pressure would have caused pigment loss. The second layer of tissue was then applied with less water, but enough to create a "bridge". Prolonged exposure to moisture caused the paints to soften considerably, therefore, only a couple of minutes were allowed before heat was applied to accelerate the drying process. The tissue layers were finally peeled off when totally dry.

The applied technique of stain removal was felt to be very similar to a washing technique. Some of the staining and discoloration were pulled onto the tissue and some of it was possibly redistributed into the support material.

Removal of mobile particulate matter was desired especially before any consolidation treatment took place (Figures 10, 11).

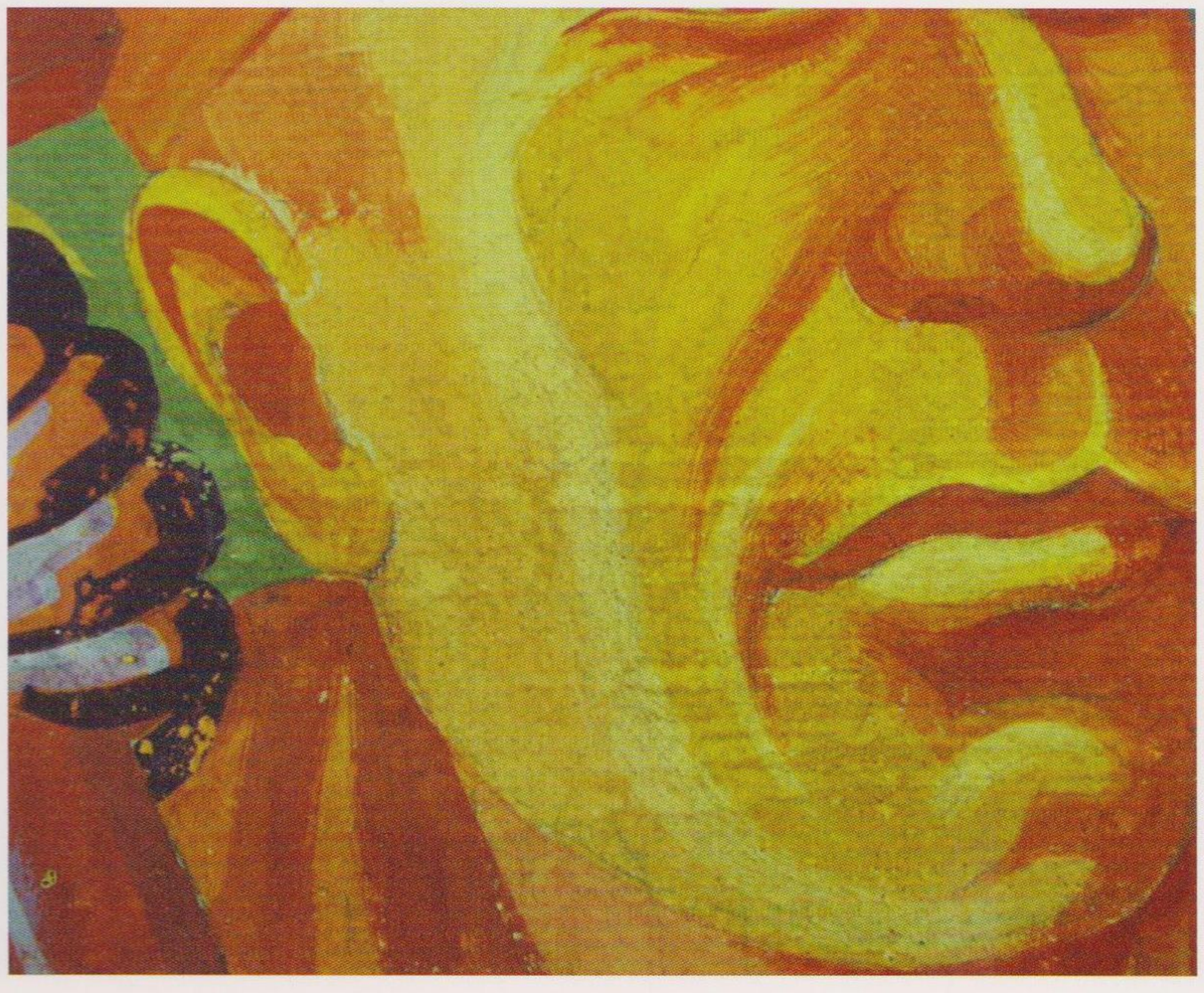
10
Detail of stained area shown in Ill. 3 after stain removal with second method

11
Detail of stained area shown in Ill. 4 after stain removal with second method

In-fills

It was obvious that only few missing areas were going to be reconstructed. For filling in, a technique strong enough to last, but compatible to the fragile nature of Pinex had to be applied. Layers of heavy-

12
Weak area before repairing



12

13

13
Area shown in Ill. 12 after repairing

Consolidation

Consolidation treatment was considered necessary due to the extreme fragility of the paint layer especially along the top of the panel[16].

We have experimented with many consolidation media in various concentrations and mixtures in order to select favourable ones[17]. Then using a Colour Densitometer, measurements were taken before and after the application of the selected consolidation media on mock samples of four basic poster paint colours. The results were transferred to graphs to help us identify the most suitable media with respect to making the least difference to spectral absorption/reflection of the pigments.

According to the Densitometry results, the first three best media were:

A Methocel A4M 1%

B mixture of wheat starch paste and Methocel A4M in H_2O (2:1) and

C mixture of Methocel A4M-J20MS[18] in H_2O (1:1).

However, assessing the visual effects the first two media had on the mock samples, both caused considerable glossiness on the surface. Therefore, the mixture of Methocel A4M-J20MS[19] in H_2O (1:1) was preferred as offering the best combination of results in Densitometry and visual examination.

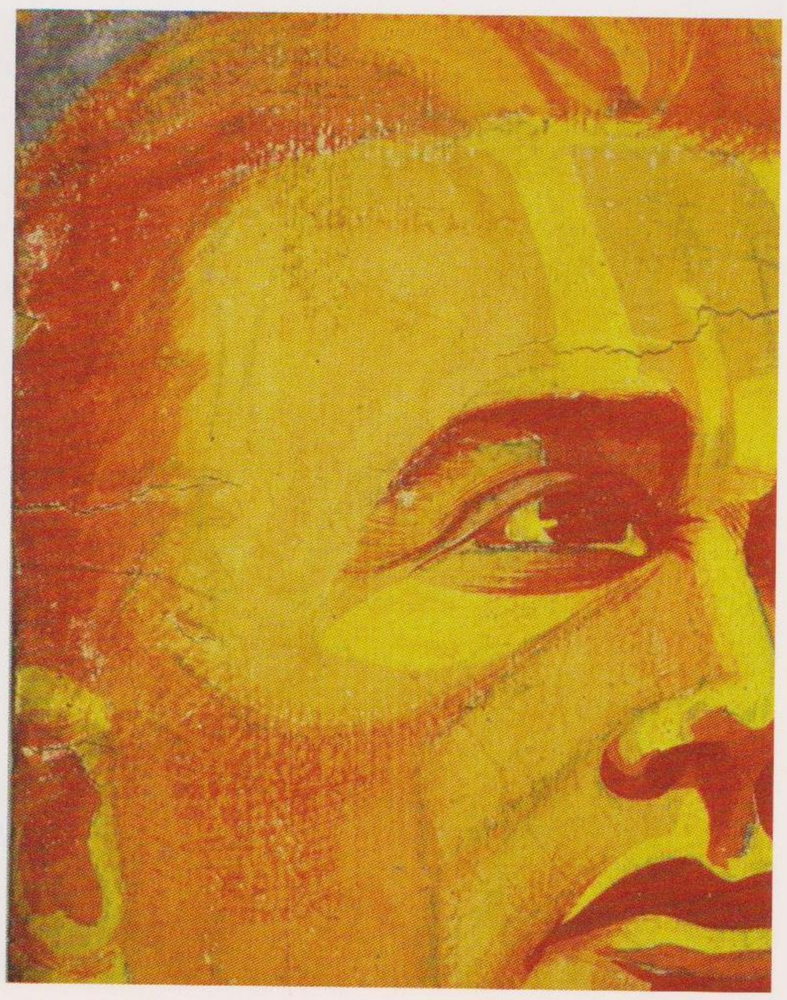
The mixture was sprayed on using an airbrush since application with a conventional brush would be too vigorous for the already loose and friable paint layer.

It has to be stressed that this empirical and studio based approach applied in devising test methods can be used only as an indication rather than as a rigorous scientific application.

weight Japanese paper were inserted parallel to the surface of the panel between the delaminating edges of the loss. Once dry, paper pulp mixed with wheat starch was applied in the gaps between the layers until flush with the board[15]. A final layer of paper made of dyed paper pulp was applied in order to match the colour and texture of the board. The interleaving layers of Japanese paper provided the necessary rigidity and the pulp provided a thickness and an appearance similar to the fibreboard (Figures 12, 13). All the paint lifting areas around the edges were secured in position by application of thin wheat starch paste and pressure. In various cracks around the surface, syringe application of paste was preferred to ensure better penetration and avoid paste residue on the surface (Ill.14).

14
Syringe application of paste

14



Storage and Display

The panels are stacked side by side in a corridor near exterior windows. They block access to part of the paintings storage area.

For the last part of the project, a design for a storage and display system was proposed, according to conservation requirements and available space. Many issues had to be taken into consideration: provision of stability and rigidity, minimal handling, invisible framing, low weight and cost. In consultation with colleagues, we proposed nine custom-made permanent backing frames to the exact dimensions of the panels as well as nine support frames, made of wood or aluminium, that would be fixed onto the permanent backing frames. Additionally, we proposed two simple, wooden storage cabinets to house the panels separated in two groups according to their sizes.

However, further investigation of different storage and display options is necessary, as initial quotes on the proposed system were expensive. This should include exploration of different materials and design. Co-operation with an architect or a joiner is

required for more precise measurements and adjustments in the existing drawings.

Conclusion

In conclusion, the project combined a variety of challenging problems and the outcome of the conservation treatments was satisfactory in all cases since the mural benefited both structurally and visually. Staining and surface grime were sufficiently removed without affecting the paint layer, and the resultant repairs considerably the original support considerably improving its overall appearance. Consolidation did not interfere with the original colour and texture and, as was observed, had good binding/adhesion properties (Figure 15).

Acknowledgements

My special thanks to André Page without whose help none of this would have been possible as well as to Pamela Najar and Margaret Calder.

I would like to thank everybody from Preservation Services and other colleagues from the National Library, each one of which provided me invaluable help in their field of expertise. I would like to express my appreciation to various colleagues and professionals from other institutions in New Zealand who were consulted at various stages of the project.

I would like to thank the Benaki Museum in Athens for giving me the chance to take this professional opportunity and all my colleagues in the Conservation Department there.

Finally I am greatly indebted to Judy Evans for her time and help.

Footnotes

[1] Report on meeting with Judy Evans written by Marian Minson, Curator of Drawings and Prints Department, ATL, on 30th March 1988

[2] This room was used for the Party's meetings as well as for Saturday night dances organised by the Unity Centre people.

[3] Exact dimensions of panels in meters (h x w): Panel 2: 1.21 x 3.035, Panel 3: 1.21 x 2.76, Panel 4: 1.21 x 1.26, Panel 6: 1.21 x 1.49, Panel 7: 1.21 x 3.035, Panel 7a: 1.21 x 0.6, Panel 8: 1.21 x 3.038, Panel 9: 1.21 x 2.43

[4] Poster paints were commercially available in jars 3–4 inches high, with a screw top.

[5] Simpson, Tony, Soviet Realism. Too Real for New Zealand? On Guy Harding, pp. 15–17

[6] Evans, Judy , Bailey, Rona, The Unity Centre Murals, Sites: A Journal for Radical Perspectives on Culture, Issue No. 16, pp. 71–72, interview with the artist Judy Evans and personal communication with Rona Bailey, 16–07–02

[7] According to: Fyfe J., Manson H., Oral History and How to Approach it, 1994

[8] FWP Penrose "History and Manufacture Processes" Handout, 1995

[9] As stated by Mr Dennis West, Production Manager, Fletcher Wood Panels Ltd in a personal communication, February 2002

[10] Lignin, inherent in lignocellulosic material, is retained and can serve as a binder, since under heat and pressure it flows and acts as a thermosetting adhesive enhancing the naturally occurring hydrogen bonding, pp. 4, 20 in Chapter 10, Wood based composites and panel products, Wood Handbook

[11] Arnold, Susan, "The technology of poster paint". In Modern Works – Modern Problems?, 1994

[12] http://www.noteaccess.com/MATERIALS/PosterColors.htm

[13] As one can see from the complete set of photos of the murals, which G.W. Harding had taken professionally. The Drawings and Prints Department holds copies (negatives) of these photographs.

[14] Tap water will be referred to as water for convenience unless otherwise stated.

[15] Kraft paper was used for the pulp dyed when needed with acrylics (pH 6).

[16] AIC, Consolidation/Fixing/Facing, 1988.

[17] Adhesion monitoring was performed by adhering two strips of Archival Text paper together with the various medial, peeling them off by hand and recording the results. While providing only empirical results it did give a good indication of the adhesive possibilities.

[18] Methocel, Cellulose Ethers, Dow Publication, 1999

[19] Methocel, Cellulose Ethers, Dow Publication, 1999

15

15
Panel 5 after treatment

Internet sites

– Youngquist, J. A., Wood Handbook, Wisconsin, Forest Product Laboratory, http://www.fpl.fs.fed.us/documents/FPLGTR/fplgtr113/ch10.pdf

– http://www.noteaccess.com/MATERIALS/PosterColors.htm