

Report on the
**RESTORATION OF OIL PAINTINGS
FROM MADRAS CHRISTIAN COLLEGE**



**Dr. V. Jeyaraj,
Curator,**



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RESTORATION OF OIL PAINTINGS FROM
MADRAS CHRISTIAN COLLEGE

By
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New Series - Chemical Conservation - Vol. 7

Published by the
Commissioner of Museums,
Government Museum,
Chennai-600 008.
June 2000

Year of Publication : June 2000

©

Commissioner of Museums
Government Museum, Chennai-600 008.

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1. Portrait of Rev. John Anderson Before and After Restoration

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1. Portrait of Dr. William Miller Before and Under Restoration
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Commissioner of Museums,

Foreword

The Chemical Conservation and Research Laboratory of the Government Museum, Chennai is the pioneering conservation laboratory in this country. This is the only State Government laboratory in this country which has grown to the status of research laboratory. Even during the 1930s, Dr. S. Paramasivan pursued many research activities as the Curator of the laboratory. Dr. V. Jeyaraj, the present Curator, has conducted many courses. Recently, consultancy and conservation services to other institutions have been activated.

Many institutions and individuals have approached this department seeking conservation services such as Madras Medical College, Chennai; Government Ophthalmic Hospital, Chennai; Government Royapettah Hospital, Chennai; Southern Railway, Chennai; Dr. D. Vijiaraghavachariar Memorial Library, Salem and few individuals have availed this service.

When the Madras Christian College, Chennai approached us for restoring 13 of the portraits of doyens of the College, the museum's conservation wing was happy to accept. The work started some time in March 2000. It was planned to use artists and art historians in the restoration of these paintings in order to transfer the conservation technology to them through a training programme. Since Dr. Alexander Mantramurthi, Principal of the Madras Christian College requested the museum to include some of the college students to have a sense of pride by participation, two of his students were also included. Nine students participated in the refresher course on Care of

Art Objects, scheduled for the period from 4th May to 1st June 2000 in this laboratory.

Dr. V. Jeyaraj, Curator, Chemical Conservation and Research Laboratory of this museum with the help of his team consisting of staff namely Thiruvallargal J.D. Jagannathan, M. Raja Balachandramurugan and R. Sampath and Volunteers namely Messers. Dally Verghese and Divya Durga Prasad completed the restoration of 13 paintings during the course. In this booklet he has narrated the methods used to restore the paintings from Madras Christian College, Chennai in such a way that the readers can take up care of their paintings.

I believe that this booklet will be useful to readers especially the artists who engaged in of preservation of our cultural heritage for posterity.



(R. Kannan)

Chennai-600 008,
19.5.2000.

CHEMICAL CONSERVATION AND RESEARCH LABORATORY – AN INTRODUCTION

History of the Laboratory:

With the valuable collection at the Government Museum, Chennai, it was felt necessary to treat the bronzes disfigured by corrosive crusts in order to expose the decorative details and to eliminate the bronze disease, which brought in added deterioration. As a result of the discussion with various chemists, the electrolytic restoration of bronzes was started in the museum. The Chemical Conservation and Research Laboratory in the museum owes to the scientific vision and foresight of Dr. F. H. Gravely, Superintendent of the Government Museum, Chennai in the early 1930s. Dr. S. Paramasivan was appointed as the Chemist in 1930. He was very active both in conservation and research activities. Besides the treatment of bronze objects, ethnological, prehistoric and numismatic objects were treated. In 1935, the Government Museum, Chennai was also of help to the Archaeological Survey of India in the examination of wall paintings at Tanjore, Sittannavasal etc.

In 1937, a separate Chemical Conservation Laboratory Block (Old Chemistry Block) was built, being the only one of its kind in India. A two storied building for the laboratory was constructed in 1963. In 1997, the Chemical Conservation and Research Laboratory was recognised as a research institution to conduct research leading to Ph. D. Degree and Dr. V. Jeyaraj, Curator of the Laboratory has been recognised as a Research Supervisor by the University of Madras. At present one part-time scholar is working under him.

Research Activities:

One of the foremost activities of the laboratory is to conduct research in conservation and materials of the past. In the beginning much research was conducted by Dr. S. Paramasivan, the first Curator of the Laboratory on paintings and metallic antiquities. The research findings were published in leading scientific journals both in India and

abroad. The research activities continued successfully by the Curators of the Laboratory till date. At present research projects such as *Fingerprinting of South Indian Bronze Icons*, *Holographing Museum Antiquities*, *Survey of Monuments in Tamil Nadu*, *Conservation of Metallic Antiquities* etc., are under progress.

Conservation Research Activities:

The Laboratory is interested in the conservation research in order to find out new techniques and materials in collaboration with leading research institutions such as Indira Gandhi Centre for Atomic Research, Kalpakkam; Indian Institute of Technology, Chennai; Anna University, Environmental Engineering wing of the CSIR, Chennai and foreign institutions like the Australian Museum Sydney and Getty Conservation Institute, Canada. The laboratory was recognised as a research institution in 1997 by the Madras University to conduct research leading to Ph. D. Degree. Dr. V. Jeyaraj, Curator of the laboratory is a recognised guide. At present one part time research student is working on a research project on Conservation of Metal Antiquities.

Publications:

The publication of this laboratory from its inception is commendable. Leading national and international journals such as Indian Academy of Sciences, The Current Science, Conservation of Cultural Property in India, Studies in Conservation, Technical Studies etc., published the out come of the research works. Besides hundreds of research and popular articles many books and bulletins have been published. Handbook on Conservation in Museums, Care of Museum Objects, Conservation of Archival Materials, An Introduction to the Chemical Conservation and Research Laboratory, Care of Archival Materials, Conservation of Temple Objects, Conservation of Cultural Property in India, etc., are some of its publications. Many conservation reports have been prepared by the successive curators regularly through out the career of this laboratory. The present Curator has prepared twenty five reports. Sven books have been published so far.

Training:

In order to disseminate the expertise of the laboratory, in 1974, a refresher course on *Care of Museum Objects* was started. It was well received by professionals and students of museum related subjects. In 1995 a course on *Care of Temple Antiquities* was conducted for the Executive officers of the Hindu Religious and Charitable Endowments Department. In 1997, a course on *Care of Archival Materials* was conducted exclusively for the Archivists. Students from the College of Arts and Crafts were given practical training for a period of 3 months on the conservation of museum objects especially on paintings. Slowly this course was named as the course on Care of Art Objects. Besides these training programmes, to the school and college students is given both in Chennai and districts on Care of Cultural Materials and Preservation of Monuments. It has entered its name as the number one in the field by introducing *Internship Training* for a period of one year.

Conservation Services:

Even though the strength of the staff in the Laboratory is very small, the Laboratory has extended service to the public and other institutions interested in the preservation of objects of the past at nominal charges. The laboratory is not able to meet the requirements of the museum as well as the outside demand due to want of staff in the laboratory. On request the Curator delivers lectures on conservation in order to popularise the subject. It is proposed to have regional laboratories in Tamil Nadu.

Conservation Gallery:

For the first time in India, the Chemical Conservation and Research Laboratory of the Chennai Museum has set up the Chemical Conservation Gallery in order to educate the visitors on the preservation of the cultural and artistic heritage of our country.

Staff:

The Chennai Museum is a multipurpose museum having over one-lakh objects and about 5% of them are in need of conservation treatment. But the strength of the staff is very poor. Action is being taken to improve the staff strength in order to cope up with the growing conservation demand. At present only three members of staff man the Laboratory. Two volunteers are helping in the activities of the laboratory.

Curator and Head of the Laboratory	: Dr. V. Jeyaraj
Laboratory Assistant	: Thiru J. D. Jagannathan
Technical Assistant	: Thiru M. Raja Balachandra Murugan
Office Assistant	: Thiru M. Sampath
Volunteer (Textile Conservation)	: Thirumathi Dally Verghese
Volunteer (Paintings)	: Selvi Y. A. Divya Durga Prasad

**A PRELIMINARY REPORT ON THE EXAMINATION OF
THE OIL PAINTINGS IN THE MADRAS CHRISTIAN
COLLEGE, TAMBARAM, CHENNAI-600 059.**

Introduction:

The Principal of the Madras Christian College, Tambaram, Chennai-600 059 Dr. Alexander Mantramurti, requested Thiru. R. Kannan, IAS., Commissioner of Museums, Government Museum, Chennai-600 008 to depute the conservation expert of the Government Museum to visit the college to examine the portraits of persons, who served in the college, which are found in a deteriorated condition. The Principal had a detailed discussion with Thiru. R. Kannan, IAS, Commissioner of Museums, Thiru K. Lakshiminarayanan, Curator for Education Section and Dr. V. Jeyaraj, Curator, Chemical Conservation and Research Laboratory of the Museum on the project, restoration of the paintings in the Madras Christian College.

The Commissioner of Museums deputed Dr. V. Jeyaraj, Curator of the Chemical Conservation and Research Laboratory of the Museum along with the Laboratory Assistant, Thiru. J. D. Jagannathan on 26th October 1999 to examine the paintings and to give a report on the restoration of the above said paintings. One of the Volunteers of the Laboratory, Ms Y.A.Divya Durga Prasad, helped in the examination of the portraits.

Location of the Paintings:

The oil paintings and photographs of some of the educationalists, who served in the college or studied in the college, were displayed in the college. At present, these portraits are kept in a hall adjacent to the Principal's office. Only four portraits are properly displayed along the walls.

Condition of the Portrait Paintings:

There are ten oil paintings. The surface of most of the paintings is very dry and has accumulated dust. Most of the canvases are found to be backed with either hard board or plywood. None of them have a backing or front glass. The frames are gold gilded but got dulled due to age. One of the paintings (William Millar) has lost the canvas and the plywood backing is visible.

Proposed Conservation Treatment:

The paintings should be carefully removed from the wall and taken to the Chemical Conservation and Research Laboratory of the Museum for restoration. The dry canvas should be separated from the plywood hardboard /frame and softened by chemical treatment. Wherever necessary, fresh canvas has to be provided. The lost portions are to be infilled with putty. The darkened varnish and dirt should be carefully removed with the help of organic solvents such as rectified spirit, diacetone alcohol etc. Wherever canvas is in need of additional support, relining is to be done. All the paintings should be provided with suitable backing. The frames should be painted with gold gilt.

Cost Outlay:

An application form to avail the conservation facilities should be filled in and sent to the Commissioner of Museums for taking the work by the Museum. The paintings will be accepted after necessary fees paid either in cash or through Demand draft in favour of the Curator, Zoology Section, Government Museum, Chennai-600 008. The materials required are to be supplied by the Principal, Madras Christian College along with the paintings. The charges for conservation services will be Rs.5,200/-. The approximate cost of materials required for conservation will be around Rs.11,300/-. The required materials should be purchased and supplied along with the paintings for restoration. The work will be completed with in three months after the acceptance of the paintings with all required materials and fees.

List of Materials Required for Restoration:

The following should be purchased and supplied; anyhow, this department will help to purchase the materials:

Sl. No.	Particulars	Quantity	Cost
1.	Canvas	5 Metres	400-00
2.	Beeswax	5 Kg	1000-00
3.	Mastic Resin	1 Kg	1800-00
4.	Plywood, 4mm	5 Sheets	2000-00
5.	Photomount	6 Numbers	250-00
6.	Oil colours	1 box	250-00
7.	Copper nail	½ Kg	100-00
8.	Cotton Nada	5 Rolls	100-00
9.	Gold powder	500 Gm	500-00
10.	Clear varnish	2 Litres	300-00
11.	NC Thinner	4 Litres	250-00
12.	Yellow paint	2 Litres	300-00
13.	Turpentine Double Distilled	1 Litre	400-00
14.	Linseed oil	1 Litre	400-00

15.	Picture varnish	1 Litre	400-00
16.	Painting brushes	12 Nos.	500-00
17.	Nails	½ Kg	200-00
18.	Plastic mugs	6 Nos.	100-00
19.	Duster cloth	6 Metres	250-00
20.	Cotton rolls	6 Nos.	300-00
21.	Di-acetone alcohol	2 Litres	600-00
22.	Acetone	1 Litre	250-00
Cost of Materials			10650-00
Cost of Restoration Charges, 100X50			5000-00
Cost of examination charges and report preparation			200-00
Miscellaneous charges			650-00
Total restoration charges			15000-00

TYPES OF PAINTINGS

There are many types of paintings preserved in museums and galleries. What ever may be the type of painting, their structure is more or less similar. They have multi-layered structure. They are the support, the ground, the pigment and the protective layer like varnish. Wall paintings, canvas paintings, panel paintings, paintings on glass, ivory, cardboard, mica etc. are some to name.

Wall Paintings:

The paintings executed on wall are called wall paintings or mural paintings (Muir = wall). If the painting is executed on wet wall it is called true fresco (*buono*) painting. If it is executed on a dry wall it is termed as fresco (*secco*) painting.

Flaking of paint layer, lifting up of the paint layer in the form of cups, blistering, cohesion, scroll formation, fading of the paint layers, abrasion, physical damage by mishandling and vandalism are the deterioration to the wall paintings. Dust, soot, moisture, heat, vibration, pollutants, cracks in the structure; salt action, biological

agents, seepage and leakage of water are the various causes for the deterioration of wall paintings.

Conservation of Wall Paintings:

The accumulated dust may be gently brushed off. The cracks may be set right. Leakage, seepage may be avoided. The conservation can only be done with an expert. Physical barriers may be provided in the monument or galleries to avoid people going near the paintings and touching them.

Glass Paintings:

In this type of paintings the support and the ground is only glass. The painting is done in the reverse manner. After painting is done the painted surface is covered with a paint to avoid the scratching. The painting is mounted with the unpainted side foremost so that the painting is seen through the glass.

Deterioration to the Glass Paintings:

Since the painting is done on a single glass simple physical force may result in breaking. The painted portions are abraded, eaten by insects. The insects eat the gilt papers. Cracking in the paint layer occurs. Due to the alkaline nature, glass disease also occurs at times.

Conservation Measures:

When the glass is broken, two supports both in the front and back are to be provided. The broken pieces are aligned together and pasted with a 5% solution of poly vinyl acetate. The retouching of the flaked off portion may be done with tempera colours. The loose papers may be pasted with Paraloid B72.

Panel Paintings:

Panel paintings have wooden support. Tanjore panel paintings have jack tree planks pasted with cloth and primed with *sukkan* paste. In this type of painting, ornaments are decorated with gem or glass or gold rakes.

Since this type of paintings is composite in nature, the problems are also multiple. The wooden joints get loosened, cohesion between the layers, the added materials get lost. Stain formation due to leakage, fading of paints etc. are noticed.

The loose planks re joined together after removing the painted cloth along with the cardboard if any. The lost materials are added. The flaked off portions are inpainted. If there is no glass front a new glass front is provided. The backing also provided, which will avoid the dust accumulation as well as insect attack.

Drawings, Prints and Paintings on Paper:

The drawings on paper, paper prints and paintings on paper pose a lot of problems. Here paper is the support. In the case of paintings ground is also applied.

Since paper is organic in nature, moisture and biological agents easily affect these types of art works. Acidity affects the paper and become brittle. They are easily mishandled.

Acidity affected art works may be dry fumigated with ammonia. They may be fumigated regularly for the eradication of microorganisms. The gallery or the storage may be environmentally controlled. Light density should be within 50 lux.

CONSERVATION OF OIL PAINTINGS

India is well known for its traditional paintings such as wall paintings on wallpaper, leather, canvas etc. there are paintings executed by artists of Persian and Indian Schools and developed over the centuries. The Europeans in India introduced the paintings on canvas. Especially British artists excelled in this form of art and we have thousands of British paintings on canvas in India. Following the

British artists, Indians continued this tradition and we have artists well known in this tradition.

Composition of Paintings on Canvas:

Paintings have a complex multilayered structure whatever may be their forms. They are support, ground, pigment and varnish. In the case of paintings on canvas, the canvas support for a painting is a strong cloth made from unbleached hemp, flax or other coarse yarn. The canvas was coated, or primed, with an inert white powder like chalk, gesso, zinc oxide, titanium oxide in a glue medium, to form a uniform layer or ground. Modern canvasses are brought ready-primed with acrylic medium. The paint layer overlay the ground and consisted of an aggregate of finely ground pigment particles suspended in a binding medium i.e. either oil colour or water colour. The usual finish was to apply a coat of varnish, to give an enhanced gloss and to protect the painting from light, dust and other environmental factors.

Pigments and Dyes:

From antiquity right up to the late nineteenth century, artists' pigments were almost exclusively inorganic materials – either natural minerals (or synthetic materials resembling them) or else residue from the careful calcination of organic matter such as bone and ivory. The pigments are invariably insoluble in a binding medium and therefore they are used as suspensions.

Dyes from ancient times to the late nineteenth century were obtained from plants and animals. Modern dyes and pigments are essentially organic compounds rather than inorganic. Dyes are generally soluble in water and bind to the textile. The natural dyes have not been widely used in painting, because of their tendency to fade and lack of intensity of colour. The madder and indigo are plant origin and they are fast colours.

Some of the ancient pigments are (white) chalk, gypsum, kaolin, lead white, bone white; (black) lampblack, pyrolusite; (yellow)

ochre, sienna, orpiment; (red) hematite, vermilion, red lead, realgar; (green) malachite, chrysocolla, verdigris; (blue) azurite, ultramarine.

Deterioration of Paintings:

The deterioration of paintings may be a result of deterioration of any one or more of the constituent layers viz. Support, ground, pigment and varnish.

Deterioration of the Canvas:

Deterioration of the canvas is due to the oxidation of the cellulose fibres. There is always a danger of the growth of microorganisms like fungi, moulds etc., in humid conditions. Silver fish, cockroaches, beetles and termites are some of the insects that damage paintings. Climatic variations have a profound effect on the condition of the paintings.

Deterioration of Paint:

Paint slowly deteriorates, and may eventually be destroyed by the combined action of atmospheric oxygen and photo oxidation.

Cleavage of paint layer from the ground due to climatic variations causes flaking of paint because the paint is unable to adapt to the change. Atmospheric pollution like sulphur dioxide, hydrogen sulphide, dust particles are very harmful for paintings. For example, white lead becomes black, lead sulphide, by the action of hydrogen sulphide. In situation of high stress cracks develop in the paint layer.

The Varnish Layer:

There are two kinds of varnishes: One is *spirit varnish* – after loss of solvent (spirit) by evaporation. It gives varnish film, which is brittle, not very durable and changes its colour due to aging. The other varnish is *oil varnish*. The drying of the varnish film is due to polymerisation of the terpenoid constituents. This may be accompanied by oxidation from atmospheric oxygen. Minute cracks are called *crackles*.

Conservation Methods:

Relining may strengthen weak canvas. The old canvas is backed with a new canvas of similar weave count, the two being cleaned and joined together by an adhesive, which is reversible in nature. In Indian condition, wax-resin adhesives are used, which not only strengthen the canvas, but also give flexibility to the old canvas. During relining, front facing is done with tissue paper and reversible paste like *maida-flour* paste for protecting the damaged paint layer and is removed by moistening and scraping it with nail. Spirit varnishes, when become dark are easily removed by dissolving by solvents like alcohol, benzene. If needed restrainers like turpentine may be used. Oil varnishes require special methods, depending on the composition of the varnish and its age. Mixture solvents are used to remove the varnish layer. Black lead white portions may be cleaned with hydrogen peroxide. After the cleaning of the surface, the loss of pigments is restored by inpainting. In order to protect the surface, picture varnish or poly vinyl acetate in poly cyclo hexanone is sprayed.

Care of Paintings on Canvas:

When paintings are affected by biological agents such as fungi, insects etc., they may be fumigated with a vapour type insecticide or fungicide, most commonly by thymol or paradichlorobenzene. Since prolonged fumigation softens the oil, fumigation should be limited for a shorter duration.

Since light is very damaging to paintings, daylight should be avoided. Fluorescent tubes with filters can be used. Indirect lights will be better. Since incandescent bulbs give off heat powerful direct focus lights should be avoided. It should be seen that the light level is less than 100 lux, where paintings are exhibited.

Since climatic variations affect the paintings, air-conditioning of the painting gallery 24 hours is ideal. Otherwise the paintings may be displayed in a gallery where humidity is controlled.

Atmospheric pollution like dust, sulphur-di-oxide, hydrogen sulphide is harmful to paintings. In the absence of air-conditioning and air filtration, the only practical method to protect paintings from atmospheric pollution is to exhibit them in glassed frames. While providing glass there should be little space between the glass and the painted surface to avoid the condensed water, which may affect the painted surface.

Oil paintings on canvas should be kept stretched and framed and the canvas should be tightened with wedges and keys. The paintings should be held in their frames by mural plates screwed to the frame with brass screws.

Oil paintings on canvas if needed to be rolled, the painted surface should be kept outside while rolling.

In storage, the painted surfaces should never be allowed to come in contact with one another or with anything hard. Storage bins with spacers that allow the paintings to be kept in a vertical position without touching one another are advisable. Paintings may be suspended with hooks on the parallel vertical grill frames. The frames are fairly near each other and are fitted with sliding frames that slide along the nails in the ceiling and the floor, so that each frame can be slid out for inspection of the picture suspended on the grill.

If the paintings are unglassed, they should be covered when kept in the storage. If the paintings are not glassed in the galleries, railings should be provided to avoid vandalism. The paintings should be suspended slightly inclined in order to avoid dust.

A padded, rolling trolley should be used for the transport of very large or heavy paintings to avoid mishandling. When transported even to short distance, the painting should not face the sun. Too much

flash should be avoided. Focus lamps for photographing should be avoided.

In the galleries, where paintings are displayed or in storage sweeping should never be done. Vacuum cleaning should be done. If dust is found on the surface of paintings, fine hairbrush should be used to dust them off.

COURSE ON CARE OF ART OBJECTS

The Chemical Conservation and Research Laboratory of the museum is regularly conducting courses for the artists in Care of Art Objects for the students of the Government College of Arts and Crafts and successful in disseminating its conservation expertise to artists. It was also felt necessary to afford training to artists and conserve the paintings sent by the Madras Christian College. As such nine persons were selected and the training was started on 4th May 2000. The course came to an end on 1st of June 2000. The participants prepared a dissertation on any one of the conservation topics relevant to their study. They conserved and restored 13 oil paintings for the college, helped in the conservation and two limestone sculptures, 5 bronze icons, some paper drawings, eight Tanjore paintings etc. The participants were awarded with certificates after successful completion of the course.

The following are the participants of the course:

1. Anne Samuel,
Lecturer,
Department of Fine Arts,
Stella Maris College,
Chennai-600 006.
2. Amalorpava Nasrine
Rajesh, S.,
Student,
Department of History,
Madras Christian College,
Chennai-600 059.
75. Doss, S.,
Opposite to Railway Station,
Keeranur-622 502.
4. Praveen Raja Chrispugg,
M. F. A. Student,
Government College of Arts

Pudukkottai District.

5. Rajesh, V.,
Student,
Department of History,
Madras Christian College,
Chennai-600 059.

7. Razia Tony, Dr.,
Lecturer,
Department of Fine Arts,
Stella Maris College,
Chennai-600 006.

9. Ushadevi, R.,
M. F. A. Student,
Government College of Arts
and Crafts,
Chennai-600 003.

and Crafts,
Chennai-600 003

6. Ramasuresh, M.,
M. F. A. Student,
Government College of Arts
and Crafts,
Chennai-600 003.

8. Sumithra Dawson,
Lecturer,
Department of Fine Arts,
Stella Maris College,
Chennai-600 006.

PARTICULARS OF PAINTINGS RECEIVED FROM MADRAS CHRISTIAN COLLEGE

1. *Rev. John Anderson (1837-1855):*

Rev. John Anderson was born at the farm of Craig, in Galloway, Scotland on 23rd May 1805. Anderson came to Chennai to start educational institution like that of Duff's School at Calcutta. He started educational institutions and thus Anderson set the pace for English education in South India.

Size: Height : 126 CM
Breadth : 102 CM

Frame : Available
Artist : Not known
Date of Painting : Not known

Condition of the Painting:

The painting is badly flaked in many places. There were loss of paint layer, cleavage and loss of adhesion between the support and the painted layer. Earlier restoration was noticed in many places. Browned varnish was also noticed.

Treatment Carried Out:

The painting was removed from the frame. The surfaces both in the front and back were cleaned and the brown varnish was removed with rectified spirit and turpentine as a restrainer. The flaking pigments were consolidated using wax-resin mixture (3:1 in weight) on the surface. The excess wax-resin mixture was removed with benzene. The loss of pigments was replaced with suitable putty (Zinc white and linseed oil) and oil colours. Wooden frame was repaired and suitably gilded and the painting was framed intact. The back was covered with coated canvas.

2. *Rev. Robert Johnston:*

He was a Missionary from the Free Church of Scotland (January 1839-February 1851). He worked along with Rev. John Anderson in the General Assembly 's School.

Size: Height : 127 CM
Breadth : 102 CM
Frame : Available
Artist : Not known
Date of Painting : Not known

Condition of the Painting:

The painting appeared brown due to the varnish. Abrasion was noticed in many places. Flaking was noticed in many places. Loss of

canvas is also noticed. Fungal attack is visible. It had already been relined.

Treatment Carried Out:

The painting was removed from the frame and the stretcher frame and cleaned the front and back of the painting with brush and later with rectified spirit. The flaking was consolidated with wax-resin mixture (3:1 by weight). The loss of paint was replaced with infilling and retouched suitably. The frame was repaired and gold gilded and framed suitably. The back was covered with coated canvas.

3. Rev. John Braidwood

He was a missionary from the Free Church of Scotland during the period 1841-1860. He was a colleague of Rev. John Anderson. He was in the teaching faculty of the General Assembly's School.

Size: Height	: 207 CM
Breadth	: 102 CM
Frame	: Available
Artist	: Unknown
Date of Painting	: Not known

Condition Before Treatment:

The painting had been darkened due to the browning of the varnish layer. Dust accumulation was so much. The painted portions were badly damaged due to crack and paints were lost. Abrasions were also noticed. This painting had been restored earlier.

Treatment Carried Out:

The painting was removed from the frame and stretcher frame carefully and the superficial dust was removed by brushing. The painting was kept on a plain table upside down and the backside was cleaned very carefully to get rid off the entire dirt and cleaned with rectified spirit taken in cotton swabs. The front side of the painting was faced with tissue paper and *maida* flour paste. After drying, the

painting was put upside down and the backside was rubbed to get rid off the dirt and browned matter and cleaned with acetone. The backside of the old canvas was coated with beeswax- mastic resin (3:1). A seasoned canvas was coated with the same wax-resin mixture and kept superimposed facing each other with the coated sides keeping the new canvas in the upper side. Oil paper was kept on the new canvas and pressed with an iron box heated to about 70°C and a glass weight was kept to press it uniformly. This joined the two canvases together. This is called relining. The front-faced tissue paper was removed very carefully after moistening with water. The extra wax-resin mixture was removed with the help of benzene and the varnish was removed with the help of rectified spirit-turpentine mixture. The lost portions were infilled with zinc oxide putty and retouched. After drying linseed oil coating was given as a protective coating. The back was covered with coated canvas.

4. Rev. Charles Cooper

He was professor of English. The Artist, C. R. Narayanasamy, executed his portrait in 1899.

Size:	Height	: 122 CM
	Breadth	: 91 CM
Frame		: Available
Artist		: C. R. Narayanasamry
Date of Painting		: 1899

Condition of the Painting:

The painting had a browned look due to the browning of the varnish layer. Many portions had been restored previously which was visible. White wash marks were also visible. The painting is fixed to a board permanently. It had an accessory support of hard board. The canvass was found to be pasted with the hard board with an irreversible adhesive. Along the edges flaking of painted layers was noticed.

Treatment Carried Out:

The painting was removed from the frame and cleaned for its dust. The varnish layer was removed with the help of rectified spirit and turpentine. In some places the earlier restored portions were removed and fresh restoration was done. The loss of pigment in many places were replaced with infilling and retouched suitably. After drying the surface was given a coating with linseed oil. The frame was cleaned and gold gilded. The back was covered with coated canvas.

5. *Rev. John Mackenzie:*

He was professor of English from 1899 to 1905.

Size: Height	: 91 CM
Breadth	: 76 CM
Frame	: Available
Artist	: Not known
Date of painting	: Not known

Condition of the Painting:

The painting was covered with dust. Some portions were found to be affected with water stains. Paint layer had been pealed off in some portions. Cracking, flaking, abrasion, discolouration, darkening were noticed. In some portions earlier restoration had been noticed. The painting is found to be pasted to a hard board support.

Treatment Carried Out:

The dust was removed first with brush and then with rectified spirit. The browned varnish was removed with the help of diacetone alcohol and turpentine. The places where there was a loss of adhesion, they were fixed with the help of wax-resin mixture. The surface losses were infilled with putty and retouched. The frame was gold gilded and the painting was framed. The back was covered with coated canvas.

6. Dr. William Miller (1862-1909):

Dr. William Miller was born on 13th January 1838 in Thurso, Caithness the northernmost country of Scotland. Miller came to Chennai (Madras) on 9th December 1862 at the age of 24 to find himself the sole missionary of the Church of Scotland in Madras. He was responsible for the creation of the Madras Christian College in 1877. He was the principal of the college. He was appointed as Vice Chancellor of the University of Madras in 1901. Miller was an eminent educationalist who helped the Government shape its educational policy.

Size: Height : 202 CM
Breadth : 89 CM
Frame :
Artist : Not known
Date of Painting : Not known

7. Dr. William Meston (1871-1933):

Dr. William Meston was born on 4th May 1871 in Scotland. Meston joined the Madras Christian College as temporary Professor of English and served in 1893 and 1894. He served as Professor of Philosophy, Bursar, and finally as Principal. In his name only the Meston Training College was named. The name of the artist is mentioned as P.M.R.S.

Size: Height : 109 CM
Breadth : 79 CM
Frame : Available
Artist : P.M.R.S.
Date of Painting : Not known

Condition of the Painting:

Dust accumulation, discolouration, white wash marks, flaking, browning etc., were noticed on the surface. It was noticed that it had earlier restored and faulty retouching was found.

Treatment Carried Out:

The painting was very carefully removed from the frame and the stretcher frame and both the front and back surfaces were cleaned very carefully with a soft brush. The front side of the painting was faced with tissue paper and *maida* flour paste. After drying, the painting was put upside down and the backside was rubbed to get rid off the dirt and browned matter and cleaned with acetone. The backside of the old canvas was coated with beeswax- mastic resin (3:1). A seasoned canvas was coated with the same wax-resin mixture and kept superimposed facing each other with the coated sides keeping the new canvas in the upper side. Oil paper was kept on the new canvas and pressed with an iron box heated to about 70°C and a glass weight was kept to press it uniformly. This joined the two canvases together. This is called relining. The front-faced tissue paper was removed very carefully after moistening with water. The extra wax-resin mixture was removed with the help of benzene and the varnish was removed with the help of rectified spirit-turpentine mixture. The lost portions were infilled with zinc oxide putty and retouched. After drying linseed oil coating was given as a protective coating.

8. Dr. James Russel Macphail (1902-1968):

Dr. James Russel Macphail was born in Bihar where his father was a missionary. He joined the Madras Christian College in the English Department in 1924. Dr Macphail served the college as teacher, Bursar, editor of the College Magazine, and as Principal. He was the Principal of the College from 1956-1962. Mr. L. Ratan executed his portrait.

Size:	Height	: 71 CM
	Breadth	: 56 CM
Frame		: Available
Artist		: L. Ratan
Date of painting		: Not known

Condition of the Painting:

This painting appeared brown due to browning of the varnish layer. Pigments had been lost in many places in the left side of the painting. White wash marks were found. The painting and the frame had been badly affected with water.

Treatment Carried Out:

The superficial dust was removed by dusting. The dirt was removed with rectified spirit. The browned varnish layer was removed with the help of rectified spirit and turpentine (9:1). After cleaning the painting was coated with linseed oil as a protective coating a number of times.

9. T. Chinnaswami Pillai (-1897):

He was a Tamil Pundit.

Size	Length	: 102 CM
	Breadth	: 71 CM
Frame		: Available
Artist		: Not known
Date of Painting		: Not known

Condition of the Painting:

This painting had accumulated dust and white wash marks through out. The portions below the chest portion had been badly damaged by cracking and loss of painting. The paint had dried up. Abrasion and fungal attack were also noticed. The back of the painting had vasp nest.

Treatment Carried Out:

Dust accretions was removed with a soft brush and alcohol. The browned varnish was removed with the help of rectified spirit and turpentine (9:1 by volume).the canvas was relined with new seasoned canvas using wax-resin adhesive mixture. The loss of pigments were replaced with zinc white and linseed oil mixed putty. After drying the

infilled portions were suitably retouched. The canvas was stretched on the original stretcher and framed with the old frame which was gold gilded. The back of the painting was nailed with a coated canvas to arrest the entry of dust and moisture.

10. K. Chinnathambi Pillai:

He was a student of the Madras Christian College. He became an Assistant professor of Mathematics and served in the college from 1896 to 1915. After his retirement in 1915, he became the professor of Mathematics at Pachaiappa's College, Madras.

Size:	Height	: 89 CM
	Breadth	: 69 CM
Frame		: Available
Artist		: Not known
Date of Painting		: Not known

Condition of the Painting:

This painting had extensive cracking, flaking, fungal attack etc. The varnish had become brown. The canvas was brittle. The painting had been pasted to a hard board with a irreversible paste. Extensive retouching had been done earlier.

Treatment Carried Out:

Accumulated dust and dirt were removed by a soft brush followed by rectified spirit. The old varnish was removed with the help of rectified spirit and turpentine as restrainer (9:1 by volume). The loss of pigments was replaced with zinc white putty and retouched with oil colours.

11. Dr. A. L. Mudaliar:

Dr. A. L. Mudaliar was a student of the Madras Christian College. He became the Vice-Chancellor of the Madras University.

Size: Height : 69 CM
Breadth : 51 CM

Frame : Available
Artist : Not known
Date of Painting : Not known

Condition of the Painting:

The painting was dry on its surface. Cracks had developed through out. The varnish layer had become brown and white and the details were obscure. Due to water attack the surface and the frame had been affected.

Treatment carried out:

The painting was very carefully removed from its stretcher frame and cleaned with a soft brush to remove the superficial dust. The browned varnish was removed using rectified spirit and turpentine. After retouching the surface was coated with linseed oil. The frame was gold gilded using gold gild powder and yellow enamel paint.

12. Name : Unknown (An elderly Indian with black coat).
Height : 66 CM
Breadth : 46 CM
Frame : Available
Artist : Unknown
Date of Painting : Not known

Condition of the painting:

The painting looked dry. The varnish got browned due to age. There are white wash marks and accumulation of dust. Cracking was also noticed.

Treatment Carried Out:

The painting was removed from the frame and cleaned to remove the dust and dirt with rectified spirit. The varnish was removed with a mixture of rectified spirit and turpentine. The loss of paint was replaced with zinc white and suitable colours. The frame was gold gilded and the painting was framed in tact.

13. Name : Unknown (A full portrait of an Indian gentleman with a turban and black and red ceremonial robes resting his left hand on a book in a podium.
- Height : 150 CM
- Breadth : 102 CM
- Frame : Not available
- Artist : A. Ram Mohan Roy
- Date of the Painting : 1912.

Condition of the Painting:

The painting was without a frame. There was loss of paint. Abrasion is noticed in many places. Flaking, wrinkling, blistering, etc., were noticed. The painting is pasted to hardboard. Earlier retouching was noticed. The varnish layer was found to be browned due to age. White wash marks were found on the surface.

Treatment Carried Out:

The varnish layer was removed with the help of rectified spirit and turpentine. The loss of adhesion was arrested by consolidation with wax-resin mixture. The excess wax-resin mixture was removed with the help of benzene. The loss of paint layer was replaced with zinc white and retouched with suitable colours. After drying linseed oil coating was provided. New frame was made and gold gilded and the painting was framed and canvas backing was given.

CONCLUSION

An exhibition on Restored Paintings from Madras Christian College, Chennai was conducted in the Centenary Exhibition Hall of the Museum from 4th May to 1st June 2000 in order to disseminate the expertise of the Chemical Conservation and Research Laboratory of the museum, exhibit the talents of the participants, make aware the public on the preservation of our art and cultural heritage for posterity.

In the function organised, Dr. R. Kannan, I.A.S., Commissioner of Museums, presided over the function, Dr. Alexander Mantramurti, Principal of madras Christian College inaugurated the exhibition, and Thiru R. B. Bhaskaran, Principal of the Government College of Arts and Crafts, Chennai gave away the certificates to the participants. This book was also released on this occasion.

ACKNOWLEDGEMENTS

The author thanks the Commissioner of Museums, Dr. R. Kannan, I. A. S., for his encouragement and all possible help, the Principal of the Madras Christian College for making available the paintings for restoration and all the information about the paintings and Thiru K. Lakshminarayanan, Curator, Education Section for his co-operation in bringing out the book. The author acknowledges the help rendered by Thiruvalargal J. D. Jagannathan, Raja Balachandramurugan, Sampath-Staff of the Laboratory, Thirumathi Dally Verghese and Selvi Y. A. Divya Durga Prasad – Volunteers of the Laboratory, Photographic, Design and Display Units of the Museum and the dear participants of the course. The author acknowledges the help rendered by the administration wing of the museum and all those who helped in bringing out this issue in a very short time.

