# CHURCH OF OUR LADY OF GOOD HOPE

## Fort Good Hope, North West Territories

## REPORT ON THE CONSERVATION AND RESTORATION

## OF THE PAINTED INTERIOR DECORATION

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## CHURCH OF OUR LADY OF GOOD HOPE

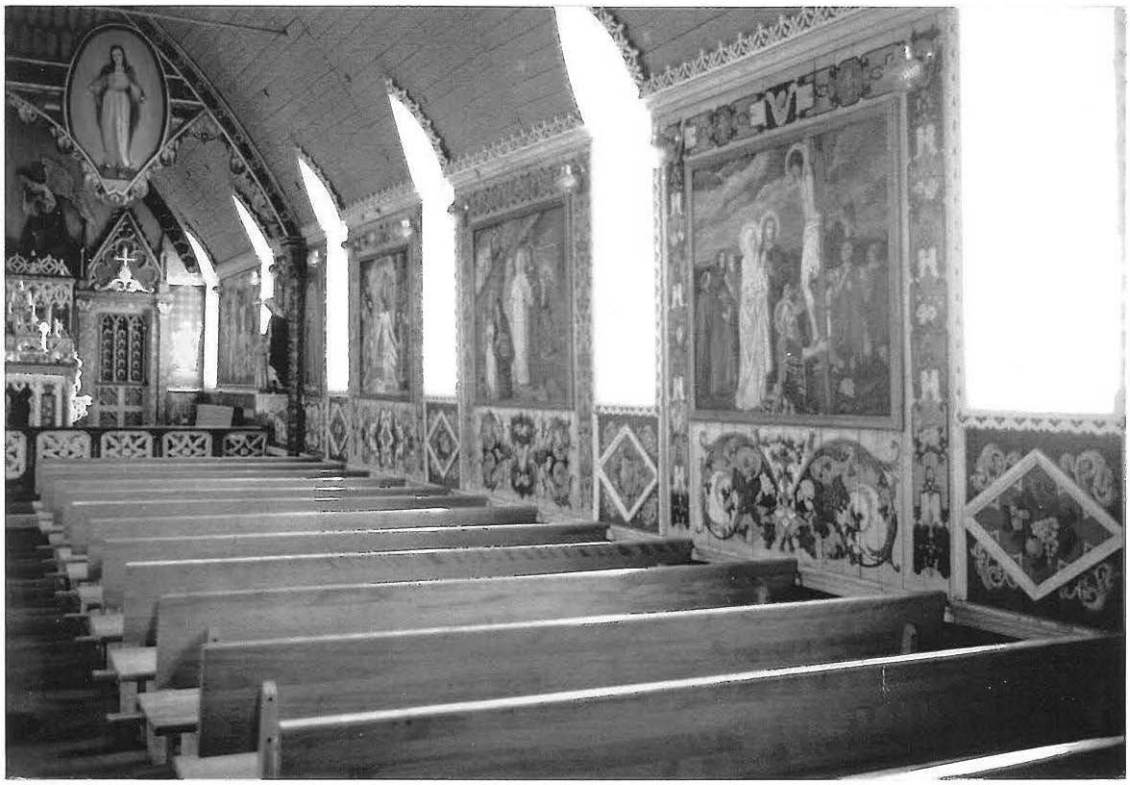

FIG. 1
Interior. Part of the south wall.

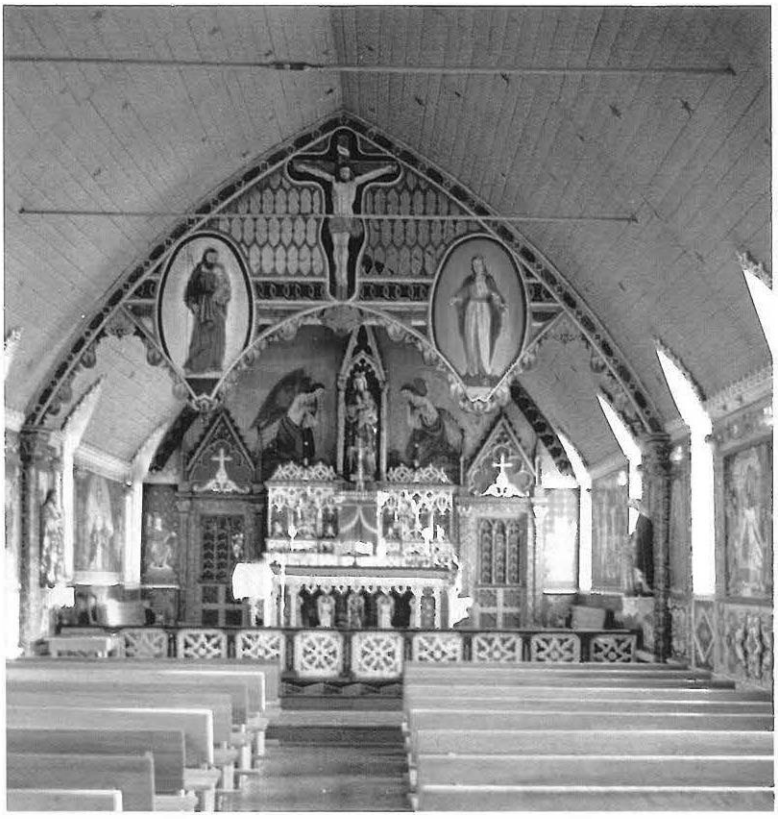

Fig. 2
Interior. View looking toward the Chancel.

# EXECUTIVE SUMMARY

The quality and richness of the painted interior of the Church of Our Lady of Good Hope is outstanding. The entire structure is an extraordinarily fine example of Canadian cultural heritage. Considering the rigours of the climate to which the paintings have been subjected they are in remarkably good condition but there are some serious problems both structural and aesthetic which need to be addressed.

This report and proposal describes the hazardous conditions and aesthetic difficulties. It outlines guiding principles for restoration and conservation treatments based on sound philosophical and ethical approaches which respect the integrity and evolution of the structure. It also proposes practical solutions to solve the restoration and conservation problems.

It is proposed to complete the restoration and conservation treatments over a three month period during the summer of 1993 using a team comprising two experienced conservators and four graduate students in art conservation. This approach has been used with success in the past, notably in the restoration and transfer of the Croscup Room for the National Gallery of Canada, the Fritz Brandtner Murals for the Exhibition Association in Regina, and the Arthur Lismer murals at Humberside Collegiate in Toronto.

The cost of labour, materials and travel are estimated at $105,627. An additional sum is required for accommodation and subsistence at Fort Good Hope. This latter sum is difficult to calculate at this time as it is dependent on the type of accommodation available. Three possible scenarios are described with cost estimates varying from a high of $81,312 to a low of $15,246. The lower figure is possible only if arrangements can be made for free use of the Mission House. This would be by far the preferred solution to the accommodation problem for both cost and logistical reasons.

To ensure success of the project the proposal would have to receive formal approval by the 1st of January 1993.

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# CHURCH OF OUR LADY OF GOOD HOPE

Fort Good Hope, North West Territories

Report on the Conservation and Restoration of the Painted Interior Decoration

## PREAMBLE :

This report is a modified and expanded version of the brief report submitted in May 1992. There are several reasons for the changes. These include additions to the proposed contract, for example the restoration of the rose window, re-instatement of coloured glass where it previously existed, and the restoration of damaged and missing fretwork tracery. Also the results of further investigations and testing carried out during a second visit to the church have clarified the extent of the work required and identified the logistical problems involved in working in such a remote location. During the most recent site visit more than twenty timed cleaning and varnish removal tests were conducted as well as the taking of paint samples for future analysis. These samples will be used in two ways. Firstly some of them will be embedded and polished for microscopic examination to help in the choice of conservation and restoration techniques. Secondly, a formal request has been made to the Canadian Conservation Institute to help with the identification of pigments, paint media and varnishes to help understand the circumstances surrounding the execution of the paintings by the Fathers and Brothers of the Mission. More samples may have to be taken for this latter objective.

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## 1. INTRODUCTION :

The extraordinary decorative and figurative paintings which adorn the interior of the Church of Our Lady of Good Hope at Fort Good Hope, North West Territories have been well described elsewhere. [1] A quite thorough description of the building's structure has been undertaken. [2] Detailed specifications have been prepared for the restoration and conservation of the structure. [3] Also a large body of historical resource material has been compiled. [4] This report therefore will be restricted to making observations on the structure, condition restoration and conservation of the painted surfaces, polychrome sculptures, painted fretwork tracery, rose window, and coloured glass in the latter and the upper sections of the nave windows. As well as making proposals cost estimates for their restoration and conservation are included. It must be realized, however, that the present condition and future well-being of the paintings are fundamentally linked to the condition and treatment of the structure of the building and the use to which the building is put.

These relationships are referred to again later in section 11.2 Environment , but at the outset the effect of the interior environment on the condition of the paintings must be mentioned. Generally speaking the paintings are in remarkably good condition considering the rigours of the climate in the region. It would appear that this is precisely because the

interior environment has not been heated in such a way that the wood interior cladding has suffered extended periods of drying with consequent shrinkage and the inevitable paint flaking which accompanies it. An upgrading of the heating system for human comfort, without controlling humidity levels, could well lead to an acceleration of the deterioration of the paintings.

It is obvious that conservation of the paintings in both the short and long term is dependent on the proper maintenance of the building envelope. This seems to be clearly understood in the present approach to the building preservation and restoration. Alterations to the structural and mechanical systems could adversely affect the paintings therefore the approach which is being adopted of having specifications for structural and mechanical work reviewed by a paintings conservation consultant should ensure that there is minimum conflict between the structural and mechanical upgrading and the preservation of the decorative painting.

Long term preservation of the building in general, and the painted surfaces in particular, will be dependant on establishing a standing arrangement for routine periodic inspection and maintenance. It is important that this take place frequently after the upgrading of the mechanical systems to ensure that no harm has been caused. This should be on an annual basis for at least the first two years with the situation reviewed periodically thereafter.

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## 2. PRESERVATION PHILOSOPHY AND ETHICS :

Any conservation and restoration work proposed for the interior decoration should conform to accepted conservation codes of ethics. [5] The significance of any historic and artistic work may change according to factors which include changes in materials, usage, ownership, fashion, etc. Thus our understanding of a cultural property should be seen as continually evolving from its origins to the present, and from the present into the future. [6] The evolution of the painted interior of the Church of Our Lady of Good Hope perfectly exemplifies this philosophical approach. Although it appears that Father Petitot had a general idea of the whole scheme of the decoration when he conceived it in the late 19th century, subsequent additions and changes to the building, the built-in furnishings and the paintings have taken place from then right on to the present.

Clearly this is not a situation where one can project back to a specific period in time at which the conservation and restoration can be directed. Nor is it reasonable to suggest that preservation should be aimed at "freezing" the structure in present time. The evolution of the entire structure is truly a continuum which reflects the changing religious and social exigencies of the building's history. It must be recognized that future social and religious changes may require further modifications to the structure. At this time an ethical approach to preservation requires that any proposals in the present project should have respect for earlier changes which have contributed to the significance of the whole structure. As a corollary we should not shrink from reversing any previous changes which, after due discussion, are deemed to have been detrimental to the significance of the whole.

A determination of the meaning of "significance" in this context is not simple. It includes both physical and metaphysical considerations. The physical attributes are easier to determine though even these are sometimes open to debate. More problematic are the metaphysical aspects. These are evoked by evidence contained in the material structure of deep spiritual and aesthetic experiences of the past. They are also related to similar experiences of the present and hopefully of the future. Nor is a determination of "significance" devoid of subjectivity, thus it is imperative that each proposed change be fully debated among all interested parties and fully documented before being carried out.

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## 3. DECORATIVE PAINTED SURFACES

Virtually every surface in the interior of the Nave and Chancel of the church has been given some type of decorative painted treatment. The designs include geometric patterns; decorative surrounds of fruit, flowers, birds, insects; many types of imitation marble and wood graining; figurative compositions; and colouring of polychrome statuary. Rather than list all the different decorated elements, for the purpose of this report the painted art work has been examined from the point of view of its type of structure and condition. Thus the work is considered under the headings of Supports, Paint Media, Pigments, Varnishes; Condition; Recommendations for Restoration and Conservation Treatment; and Preventive Conservation.

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## 4. LIST OF TYPES OF PAINTED SUPPORT

### 4.1 PAINTING ON WOOD SURFACES

Generally speaking the wood elements forming part of the building structure which have been given decorative painted finishes are in sufficiently good condition that they can be treated *in situ* without removing them from their present locations. This is a great advantage since any attempt to remove them, while possible, would be very hazardous and would inevitably cause damage to the wood members as well as the painted surfaces. The most obvious problems are gaps which have opened up between planks and unpainted areas at edges where there is evidence of movement having taken place in the building structure. There are also some areas which seem not to have been finished. The following is a list of painted wood surfaces.

.2 Structural Members :
.3 Interior Wood Plank Cladding on Walls:
.4 Interior Wood Plank Cladding on Ceiling :
.5 Wood Plank Floors :
.6 Decorative Architectural Elements :
.7 Functional Ritual elements:
.8 Polychrome Sculptures :

4.2 PAINTING ON TEXTILE SUPPORTS

The painted textile supports appear to be in reasonably good condition but some attention will have to be paid to the manner in which they are attached to their backings. The following is a list of the painted textile supports.

.1 Dead Christ under Communion Table :
.2 Painted Panels in Nave :

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## 5. PAINT MEDIA

### 5.1 OIL PAINTS

.1 Linseed Oil

Most of the painted decorations have been carried out in oil paints. The exact type of oil is unknown but is probably a conventional drying oil such as linseed oil, however other oils may have been used alone or in conjunction with linseed oil.

.2 Fish Oils

There is an oral tradition that fish oil was used and this is possible although fish oils are generally classified as non-drying oils. Gettens and Stout state that they will dry when boiled with a siccative,[7] and Doerner says that even though they are very poor materials for painting they do occur here and there as artists' materials. [8] It is possible that they were used to extend the linseed oil which would have to have been imported. Chemical analysis of these media is difficult but possibly could shed some light on the matter.

### 5.2 DISTEMPER PAINTS

.1 The Ceiling

The original blue of the ceiling was painted with distemper paint, that is to say pigment bound with diluted hide glue solution, possibly prepared by the Fathers from local skins. This type of paint is quite fragile and easily damaged by water. Severe damage can be seen on the ceiling in the archival photographs. [9] This was no doubt the reason for it being stripped and repainted by René Fumoleau in 1956. [10]

.2 The Chancel Arch

There is also some documentary evidence that the figures on the Chancel Arch were also in distemper. Perhaps they were also in poor condition when the decision was made by George Banksland to repaint them in the 1950 s. [11]

5.3 OTHER PAINT MEDIA

.1 The Polychrome Sculptures

It is likely that other paint media, such as egg tempera may have been used on the three polychrome sculptures. Also the sculptures have areas of gold leafing which has probably been applied with a water based mordant such as hide glue or egg white.

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## 6. PIGMENTS

A wide range of coloured pigments has been used in the paintings, even on the very earliest work. There is an oral tradition that the Brothers prepared pigment from berries. This is possible but unlikely. It is notoriously difficult to prepare stable pigments for paints made from vegetable sources. It is more likely that the Brothers were seen making textile dyestuffs from vegetable sources and the activity misinterpreted. From the inspection carried out to date there does not seem to be any evidence of colour fading which would be associated with the use of organic pigments of that type. Further investigation and possible chemical analysis will be undertaken.

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## 7. VARNISHES

There are entries in the accounts of the Mission at Fort Good Hope for the purchase of varnish as well as a statement that the paintings were varnished in 1917. [12] It is not clear what type of varnish was supplied but according to the practice of the time it would likely be commercial oil/copal varnish. This is a durable varnish used primarily for protection of surfaces. It is not regarded as suitable for artistic work as it discolours and becomes insoluble, making removal difficult. Trial varnish removal tests were carried out in 1991. During the site visit in August 1992 more extensive tests were conducted. Some of these were timed to enable a more accurate estimate of costs to be developed. This new information is reflected in the modifications to the cost estimes in Section 13 below.

In summary the tests show that the discoloured varnish on the Petitot paintings in the Nave can be successfully removed albeit with some difficulty. Also it was discovered that the varnish on the early paintings in the Chancel executed by Brother Ancel has been applied much more thinly and has discoloured less, to the extent that varnish removal will not be required on these paintings. There are problems with complete varnish removal. Some colours are more sensitive than others and complete removal may not be possible in every case. However partial removal is possible everywhere and the effect is quite spectacular ass illustrated in the Photographic Appendix.

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## 8. CONDITION OF PAINTED SURFACES

As previously stated the painted surfaces are generally in good condition but there are

some exceptions which require restoration and conservation treatment. These are listed below in three categories; i) Hazardous condition, ii) Aesthetically unsatisfactory, and iii) Questionable.

8.1 HAZARDOUS CONDITIONS

.1 There are some areas of flaking paint on the painting of the Nativity/Adoration secene on the north wall of the chancel. These are the most serious areas of hazardous condition and will need extensive consolidation.

.2 There are loose original fill materials at joints between boards on the Nativity on the north wall of the Chancel and especially on the scene of Our Lady of Good Hope on the south wall of the Chancel. This putty filler was put in place prior to the execution of the painting. The gaps occurred presumably as a result of green wood drying out and shrinking after its attachment to the walls.

.3 The carved and painted angel caryatid figures holding up the front of the Communion Table are in poor condition. There are missing pieces of wood carving at the top of the wings and several pieces are loose.

.4 There are loose and separated wood elements on the Tabernacle. Some are missing but some are lying loose on top of the Tabernacle.

.5 Polychrome sculpture of Our Lady of Good Hope located above the altar is in very poor condition. There are a few pieces of the wood carving which have become separated and there is extensive flaking of paint on the cloak and particularly along the base. It is likely that closer examination will reveal that paint separation and potential loss exists in many other areas.

.6 There is some severe flaking of paint on painting on canvas of the figure of the Dead Christ located behind the angel caryatid figures at the back of the Communion Table. The painting is very loosely attached to an unsightly piece of plywood now visible because of the relocation of the Communion Table in 1966 to accommodate changes in religious practice.

.7 One of the canvas paintings in the panels on the north wall is delaminating and badly buckled. In other areas the canvas is detaching but is not yet buckled.

8.2 AESTHETICALLY UNSATISFACTORY ELEMENTS

.1 There are several areas of badly matched and discoloured retouches on the painted surfaces. These are especially evident on the canvas paintings in the panels and on the decorative work on the walls near the entrance.

.2 All the painted surfaces are grimy. It is recorded that the walls were varnished circa 1917 thus all surfaces painted before that time have this varnish coating. There are many drips and runs indicating that the coating was very badly and unevenly applied. This coating is severely discoloured thereby obscuring the original brightness of the colours.

Clearly the paintings were originally intended to dazzle in their brilliance. Preliminary cleaning and varnish removal tests were undertaken and these show that the discoloured dirt and varnish layers can be successfully removed in most areas. Further tests need to be conducted. These are projected to be done during the site visit proposed for August 1992.

.3 The colour of the ceiling has been changed and no longer has the intensity of blue it originally exhibited. Traces of a strong, intense blue can be seen in cracks, at edges, and in corners where the paint stripping did not reach. The original ultramarine blue colour against the pale yellow background and sparkling colours of the decorative framing of the wall panels must have been breathtaking in its effect.

.4 All the white elements of the architectural wood work were originally decorated with a *faux* finish of blue veined marble. For some reason many of these areas were later painted over with plain white paint. This may have happened at the time the altar was moved to accommodate the vestment closet and drawers behind it in the vestry. Vestiges of the blue veining are quite clear in some areas and could be made fully visible with infra-red examination.

## 8.3 QUESTIONABLE AREAS OF PAINTED DECORATION

### .1 Chancel Arch

It is recorded, and is also clear from old photographs, that the figures on the Chancel Arch have been repainted. More information is needed to determine the reasons for, and implications of, the repainting. Since there is some evidence that the original was painted in distemper while the overpaint is in oil there may be no hope of recovering the original if this were desireable. The repaint is not aesthetically displeasing and clearly is within the spirit of Petitot's concept aesthetically. However there has been an iconographic change in the removal of the starred halo of the Virgin and its replacement with a plain halo. Advice should be sought from church authorities if this change is significant and if so consideration should be given to re-establishing the original iconography.

### .2 Evidence of Movement in the Structure

In various locations there is evidence of movement in the building structure which reveals areas of unpainted wood in joints between boards and other structural members. It is here recommended that these be left as evidence of the natural behaviour of a building of this type in this location. This approach would be consistent with minimal intervention with the original work. The problem may be more than merely aesthetic. To judge from the scraps of cloth and other material which have been wedged into gaps in the structure, presumably by the congregation, there may be a serious draft problem. It remains to be seen to what extent the covering of the exterior with an air barrier will cure the condition.

The preferred approach, both aesthetically and structurally, would be to leave the gaps unfilled. It is therefore proposed that no action be taken at this time until it can be

established to what extent the drafts are eliminated or reduced by the barrier.

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## 9. RESTORATION AND CONSERVATION RECOMMENDATIONS

The restoration and Conservation recommendations outlined below follow two principles both aimed at respect for the physical and conceptual integrity of the interior, but not always easy to reconcile in architectural conservation. These are Original Concept and Design Evolution.

### 9.1 GUIDING PRINCIPLES

#### .1 Original Concept

It is clear from documentary evidence as well as from visual examination and interpretation of the interior, that Father Petitot's original design was intended to carry out the Mission's desire to profoundly impress its target missionary population with the richness of design and intensity of colour contrast of the church interior. This should be a strong guiding principle in the restoration process. All the proposals in this report are aimed at maintaining this concept.

#### .2 Evolution of the Interior Decoration

Another guiding principle in all architectural conservation is respect for the evolution of the structure. The interior design and decoration of this structure have evolved with additions and alterations over its entire lifespan from the 1870's until the present, but in all but three cases the changes have taken place within the spirit of Petitot's original concept. The two changes which go against the original concept are : i) the stripping and repainting of the ceiling with a dull grey/blue instead of the brilliant original blue; ii) the overpainting of the blue marble veins on the white painted, carved tracery; and iii) the removal of colour from the rose window and chancel windows. These should be regarded as negative changes and reversed by restoration.

A third important change is the moving of the communion table forward from the alter in accordance with a change in religious ritual. This is a prime example of the type of evolutionary change which adds significance and must therefore be respected.

### 9.2 RECOMMENDATIONS

Outlining recommendations for treatment could be approached in different ways. One way would be to list all the different painted elements in the interior and describe the treatment required for each. This would be very thorough and is necessary for documentation purposes prior to doing the treatment. It is however long and repetitive since many of the elements require the same treatment. Consider, for example, the doorways from the Chancel to the Vestry where each wood element has a different paint

finish. Ten* different *faux* marble and wood-grain finishes on a single doorway!

For the purposes of this report the recommendations are presented according to the type of intervention required. Thus there are headings for Consolidation, Surface Cleaning, Varnish Removal, Overpaint Removal, Repair, and Repainting.

.1 Consolidation of Loose and Flaking Paint

.1 Nativity scene on the north wall of the Chancel

.2 Our Lady of Good Hope scene on the south wall of the Chancel

.3 Painting of the Dead Christ under the Communion Table

.4 Polychrome sculpture of Our Lady above the altar

.5 Other minor areas of flaking throughout the church

.2 Surface Cleaning

.1 Conservation cleaning of all decorative painted surfaces

.2 General cleaning of surfaces to be repainted

.3 Varnish Removal

.1 Solvent removal of all areas covered with the discoloured varnish applied in 1917. This includes all the early surfaces painted by Father Petitot but not the those painted by Brother Ancel on the walls of the chancel. The latter require surface cleaning only with some areas of thinning of the varnish. Similarly all the later paintings will require only surface cleaning with varnish thinning in certain areas.

.4 Overpaint Removal

.1 All the discoloured retouches on the painted panels to be removed, repaired, filled and retouched where necessary.

.2 Possible removal of white overpaint on the blue marble veins. This may be impossible but further tests will confirm.

.5 Repair and Replacement

.1 Polychrome sculpture, parts to be reattached where loose parts exist and new

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* The previous brief report mentioned seven different finishes. More recent examination reveals that there are in fact ten different *faux* finishes on each doorway.

parts to be added where missing. The latter to be painted to integrate visually with the original.

.2 Tabernacle, parts to be reattached where loose parts exist and new parts added where missing. The latter to be painted to integrate visually with the original.

.3 Angel caryatid figures in front of Communion Table. Parts to be reattached where loose parts are still extant and new parts added where missing. The latter to be painted to integrate visually with the original.

.4 Fretwork Tracery, new parts to be fabricated to match the original where parts are missing. The latter to be painted to integrate visually with the original.

.5 Rose window, consolidate original wood where practicable, replace defective and missing parts with new parts carved to match the original. The latter to be painted to integrate visually with the original.

.6 Supply and fit coloured glass for the rose window and the upper sections of the nave windows. The colour pattern to reproduce the original scheme where there is enough information, otherwise in a scheme to harmonize with the original.

.6 Repainting

.1 Church ceiling, prepare to receive paint by : i) recording position of appliqué stars removing them and cleaning them for replacement, ii) washing and sanding the ceiling lightly. Repaint in original colour as seen at cracks and edges of mouldings etc. The original paint was in distemper colour but this has now been removed and replaced with either flat oil or latex. Since distemper paint is very fragile, difficult to clean and not satisfactory applied over other binding media, it is proposed that the restoration be done in paint of the same type as the present blueish grey.

.2 If removal of overpaint to reveal the blue marbling proves to be impossible the veining should be reconstructed following the original design as closely as possible.

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## 10. DOCUMENTATION

Written and photographic documentation is necessary at all stages of the treatments and a fully illustrated report submitted to the owners on completion of the project.

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## 11. PREVENTIVE CONSERVATION

### 11.1 PROTECTIVE SURFACE COATING

After cleaning and removal of the discoloured varnish it is recommended that the decorative paint surfaces be given a protective surface coating. This coating must be non-yellowing and as reversible as possible. The preferred material is a hard micro-crystalline wax with the inclusion of a small quantity of Acryloid B-72 acrylic resin. This type of coating takes the brunt of dirt and abrasion but is easily removed with mineral spirit, without hazard to the original paint at a later date should this be required.

## 11.2 ENVIRONMENT

At present the painted surfaces are generally in remarkably good physical condition considering their age and the fact that they are painted on wood, a support material which is notoriously troublesome because of its reactivity ( ie. shrinking and swelling) to changes of relative humidity (RH). There is little doubt that their good condition is due largely to the relatively stable environmental conditions which have prevailed in the interior of the church over the years.

### .1 Environment Stability

The stability of the environment, in particular the Relative Humidity, has resulted from several factors :

.1 The building has been mostly unheated during the winter. Thus the wood structural members and interior cladding have not been subjected to excessive changes of Moisture Content (MC), especially drying, which would have led to shrinkage, cracking and paint flaking.

.2 Until recent times the old heating systems were inadequate to raise the interior temperature to the point where the wood became dried out.

.3 In recent times the heating system has been adequate to raise the temperature to human comfort level but the use of the heating system has been limited to one or two short periods each week.

.4 Heat usage and its effects on the interior environment has been monitored over the past year using continuous recording hair hygrothermographs. These instruments are not accurate at extremes of temperature and relative humidity so the readings cannot be assumed to have given accurate data. They can, however, give useful indications of trends. Recently two data loggers have been installed but no readings are available from them as yet.

The readings show that activation of the furnace causes a quick rise in temperature with a concomitant drastic drop in R.H. These conditions are not conducive to the long term preservation of the painted surfaces but are probably better than heating to human comfort levels over extended periods. It is possible that there is so much wood in the structure that there is a short-term self-buffering effect which has prevented

excessive shrinkage of the wood and the resultant paint flaking. It is also possible that the flaking paint which is visible on the paintings is of recent origin and post dates the installation of the present heating system. It should be noted that the areas of greatest damage (the ceiling, which has been stripped and repainted; the figures on the chancel arch, which have also been repainted; and the polychrome sculpture of Our Lady of Good Hope which has much flaking paint and loss of parts from glue failure) are high in the interior where the rising heat would have caused lower RH levels and a greater degree of desiccation. A more extensive study of temperature and RH levels in relation to the moisture content of the wood should be undertaken.

.5 It is unfortunate but true that increasing the temperature to human comfort levels during the winter is inevitably bad for the preservation of the paintings unless the RH can be controlled. Controlling RH levels in a historic structure such as this is extremely difficult and very costly. Increasing RH levels without adequate insulation and vapour barriers can destroy the structure of the building. Retro-fitting insulation and vapour barriers in the correct places is a hazardous procedure involving massive intervention in the building structure the design of which makes installation of a complete and effective vapour barrier impossible without loss of the integrity of the historic building structure.

.6 The proposal in the specification for the building restoration not to fit insulation and a vapour barrier in the walls and ceiling behind the painted surfaces is probably the best approach in the circumstances, but there are dangers.

.7 The application to the exterior of plywood sheathing and building paper under wood siding is structurally sound and will seal the building envelope against drafts. This will make the heating system much more efficient with the possibility of lower RH levels and consequent damage to the painted surfaces.

.8 The installation of an efficient furnace with "programmable night setback thermostat" seems to imply that heating will remain on at preset levels. This could be disastrous depending on the levels and their effect on ambient Relative Humidity and Moisture Content levels in the wood under the paint layers.

.2 Recommendations

.1 Every effort should be made to keep heating to a minimum thereby avoiding drastic changes in ambient Relative Humidity and wood Moisture Content.

.2 Consideration should be given to fitting the heating system with some type

of low RH shut-down.

.3 Environment should be closely monitored. Consideration should be given to carrying out a long term study by installing Temperature, Relative Humidity, Moisture Content and Event monitors fed to a multi-channel data logger capable of plotting each factor against the others to determine the effects on the structural stability of the painted surfaces. The data logger could be attached to e modem which would allow monitoring of the system from remote locations such as Yellowknife, Winnipeg, Ottawa or Kingston.

.4 The condition of the painted surfaces should be monitored at specified intervals to detect any adverse effects of the new heating system and make future recommendations about its operation.

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## 12. TIME FRAME FOR TREATMENTS

Accurate estimating of the time required for restoration and conservation work of this kind is very difficult, especially with the limited amount of testing which has been possible to date. With proper advanced planning, and with a workforce comprising a Project Director, Project Supervisor and four conservators, it is possible that the treatments outlined above could be accomplished in a period of three months. The preferred time frame would be from mid May to mid August.

The work would be carried out according to a prioritized schedule so that in the event of unforseen circumstances the working season could end at a point where the structural consolidation was complete and the aesthetic effect satisfactory. Progress would be constantly evaluated and updated.

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## 13. LOGISTICS

### 13.1 TRAVEL

.1 Summer 1993

The conservation team would fly in around the middle of May with equipment and supplies in boxes. Prior arrangements would have been made for such large items as scaffold, lumber, plywood etc. to have been delivered tp the site.

.2 ACCOMMODATION

Adequate comfortable accommodation would have to be provided for the Conservation Team, preferably in one location. This would require single rooms for each of the team members, bathroom (shared), kitchen plus a common area for food and relaxation.

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## 14. ESTIMATED COSTS

### 14.1 PREAMBLE TO ESTIMATED COSTS

.1 The following estimated costs are based on the assumption that the project will be undertaken by a team of conservators consisting of the following personnel : i) myself as Project Director, ii) an experienced conservator as Project Supervisor in my absence, iii) four graduate students of conservation undertaking the work as internships in their formal educational program. If the project were to be undertaken by a team consisting of all already graduated professional conservators then the estimated costs would be considerably higher.

Estimated costs are broken down into two stages. These are :
i) Costs of restoration and conservation treatments including labour, materials and travel expenses.
ii) Possible costs of accommodation at Fort Good Hope depending on the availability of accommodation. Until there are answers to questions about availability of accommodation it is impossible to determine final costs of accommodation and subsistence at this time. Three possible scenarios are given below.

A further stage should be considered involving an on-going research project into the effects of the changed environment on the stability of the painted decoration. The latter is not included in the following cost estimates.

### 14.2 RESTORATION AND CONSERVATION TREATMENT
Excluding costs of accommodation at Fort Good Hope

.1 Fees

| | | |
|---|---|---|
| .1 | Project Director | |
| | Eight weeks at $2,100 per week = $16,800<br>(Six weeks on site and two weeks off site) | 16,800.00 |
| .2 | Project Supervisor | |
| | Twelve weeks at $1,500 per week = $18,000 | 18,000.00 |
| .3 | Four Graduate Student Conservators | |
| | Twelve weeks at $525 per week X 4 = $25,200 | 25,200.00 |
| .4 | Secretarial assistance | |
| | Two weeks at $600 per week | 1,200.00 |

.2 Transportation

.1 Travel, Project Director

| | |
|---|---|
| Two return trips at $2,800.00 each = $5,600 | 5,600.00 |

.2 Travel, Supervisor and Conservators

| | |
|---|---|
| One return trip each at $2,800.00 X 5=$14,000 | 14,000.00 |

.3 Materials and supplies

| | | | |
|---|---|---|---|
| .1 | Photographic materials and processing | $2,000 | |
| .2 | Solvents | 1,000 | |
| .3 | Cotton Wool | 500 | |
| .4 | Adhesives | 200 | |
| .5 | Lumber and plywood | 1,000 | |
| .6 | Paints | 500 | |
| .7 | Resins/waxes | 200 | |
| .8 | Detergents/thickeners etc. | 200 | |
| .9 | Tissue and silicone papers | 200 | |
| .10 | Respirator cartridges | 600 | |
| .11 | Fans (4 small, 1 large) | 300 | |
| .12 | Miscellaneous | 500 | |
| .13 | Coloured glass. 150 sq,ft. at $7.50 | 1,125 | |
| .14 | Rentals | | |
| | -Scaffold, (allowance estimate) | 2,000 | |
| | -Other Equipment | 1,000 | |
| .15 | Transportation of Equipment, Materials and Supplies 4 crates each weighing 100 lbs. at $4.00 per lb.$1,600 | 1,600 | |
| .16 | Transportation of Hazardous Materials, extra charges for transportation of hazardous solvents. | 400 | |
| .17 | Administrative supplies, stationery, postage long distance phone calls, etc. | 500 | |
| | Sub Total Materials and Supplies | 13,825 | 13,825.00 |

.4 Accommodation en route

.1 En route to F.G.H.

| | | |
|---|---|---|
| .1 | Project Director 2 nights at $100.00 | $200 |

| | | | |
|---|---|---|---|
| | .2 Supervisor and Conservators 5 x 1 night at $100.00 | $500 | |
| .2 | En route from F.G.H. | | |
| | .1 Project Director 2 nights at $100.00 | $200 | |
| | .2 Supervisor and Conservators 5 x 1nights at $100 | $500 | |
| | | $1,400 | 1,400.00 |
| .5 | Sub-total excluding Accommodation and Subsistence at Ft. Gd.Hope | | 96,025.00 |
| .6 | Contingency ( 10% Of estimates) | | 9,602.00 |
| .7 | Total excluding Accommodation and Subsistence at Fort Good Hope | | 105,627.00 |

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14.3 ACCOMMODATION AND SUBSISTENCE AT FORT GOOD HOPE

At present there is some doubt as to the accommodation which would be available at Fort Good Hope. Adequate comfortable accommodation would have to be provided for the Conservation Team, preferably in one location. This would require single rooms for each of the team members, bathroom (shared), kitchen plus a common area for food and relaxation. There are three possible solutions to the problem. These are i) accommodate the team in the Ramparts Hotel ( if there are enough rooms), ii) rent a house (or houses), and iii) use the Mission House. The costs given below outline estimates for the three differents scenarios.

.1 Scenario # 1 - Ramparts Hotel

.1 Accommodation

.1 Project Director

42 days at $110 per day = 4,620.00

.2 Supervisor and 4 Conservators

84 days X $110 X 5 = 46,200.00

50,820.00 50,820.00

.2 Subsistence

.1 Project Director

| | | |
|---|---|---|
| 42 days at $50.00 per day = | 2,100.00 | |
| .2 Supervisor and Conservators | | |
| 84 days at $50.00 per day X 5 = | 21,000.00 | |
| | 23,100.00 | 23,100.00 |
| .3 Sub-Total for Scenario #1 | | 73,920.00 |
| .4 Contingency (10% Of sub-total) | | 7,392.00 |
| .5 Accommodation and Subsistence Total for Scenario #1 | | 81,312.00 |

==========

.2 Scenario #2 - Rental of 2 houses

.1 Accommodation

(Assuming Rental of two houses to accommodate 6 people)

| | | |
|---|---|---|
| .1 Rental of two houses in the Community at $1,200 per month each for three months 3 months X 2 houses X1,200.00=$7,200.00 | | 7,200.00 |
| .2 Subsistence | | |
| .1 Project Director | | |
| 42 days at $30.00 per day = | 1,260 | |
| .2 Supervisor and Conservators | | |
| 84 days at $30.00 per day X 5 = | 12,600 | |
| | 13,860.00 | 13,860.00 |
| .3 Sub-Total for Scenario #2 | | 21,060.00 |
| .4 Contingency (10% Of sub-total) | | 2,106.00 |
| .5 Accommodation and Subsistence Total for Scenario #2 | | 22,166.00 |

==========

.3 Scenario #3 - Assuming Free use of the Mission House

.1 Accommodation

(Assuming Free use of the Mission House) Nil

.2 Subsistence

.1 Project Director

42 days at $30.00 per day = 1,260

.2 Supervisor and Conservators

84 days at $30.00 per day X 5 = 12,600

13,860 13,860.00

.3 Sub-Total for Scenario #3 13,860.00

.4 Contingency (10% Of sub-total) 1,386.00

.5 Accommodation and Subsistence Total for Scenario # 3 15,246.00

==========

14.4 TOTAL COSTS OF THE ENTIRE PROJECT INCLUDING THE THREE SCENARIOS

.1 Worst Case (including Scenario #1

| | | |
|---|---|---|
| .1 | Labour, Materials and Travel | 105,627.00 |
| .2 | Accommodation and Subsistence | 81,312.00 |
| | | 186,939.00 |

.2 Middle Case (including Scenario #2)

| | | |
|---|---|---|
| .1 | Labour, Materials and Travel | 105,627.00 |
| .2 | Accommodation and Subsistence | 22,166.00 |
| | | 127,793.00 |

.3 Best Case (including Scenario #3)

| | | |
|---|---|---|
| .1 | Labour, Materials and Travel | 105,627.00 |
| .2 | Accommodation and Subsistence | 15,246.00 |
| | | 120,873.00 |

14.5 PAYMENT SCHEDULE

The following payment schedule would be required :

| | | |
|---|---|---|
| .1 | Advance Payment to be made by April 1st 1993. | 20% |
| .2 | Interim paymentto be made by May 31st 1993. | 20% |
| .3 | Interim paymentto be made by June 30th 1993. | 20% |
| .4 | Interim payment to be made by July 31st 1993. | 20% |
| .5 | Interim paymentto be payed by August 15th 1993. | 10% |
| .6 | Final payment to be payedon completion within 15 days of the submission of the final report. | 10% |
| | | 100% |

14.6 NOTIFICATION OF ACCEPTANCE OF THIS PROPOSAL

Formal notification of acceptance of this proposal must be given by January 1st 1993.

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15. FUTURE MONITORING PROJECT

This report focuses only on the present restoration and conservation treatment of the interior of the church. Proposals and cost estimates for future monitoring are not included. It is, however, strongly recommended that a long term monitoring project be initiated. Information about the equipment for undertaking such a future monitoring project, to determine the effect of changes in the structure and mechanical systems, is not available at this time but could be prepared if required.

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## 16. NOTES AND REFERENCES


1. WRIGHT, Janet Church of Our Lady of Good Hope Ottawa : Parks Canada, Heritage Commemoration Series (1986)

2. Architectural Assessment for the Church of Our Lay of Good Hope Produced by The Heritage Conservation Program, Architectural and Engineering Services for Environment Canada (Nov. 1990)

3. TAYLOR, Larry Architects Ltd., Jacobsen Hage Engineering and Tan And Associates Engineering Ltd., Specifications for Restoration, Church of Our Lady of Good Hope, April 10th, 1992, (with subsequent amendments)

4. CARTER, Margaret, Heritage Research Associates, Ottawa (1991) This work is in three parts in separate volumes. Part 1 is a compilation of Resource Bibliography; Part 2 is a collection of archival photographs; and Part 3 is a set of briefing Notes prepared for architect's site visit May 23-24 1991.

5. Code of Ethics and Guidance for Practice for Those Involved in the Conservation of Cultural Property in Canada , Ottawa: International Institute for Conservation Canadian Group and the Canadian Association of Professional Conservators, (revised edition 1989).

6. HODKINSON, Ian "Man's Effect on Paintings" Shared Responsibility Ottawa: National Gallery of Canada (1990) pp. 54-68.

7. GETTENS, J. and STOUT, G. Painting Materials: a short encyclopaedia, New York: Dover Publications Inc. (1966) p 24.

8. DOERNER, Max The Materials of the Artist and their Use in Painting, New York: Harcourt, Brace and Co. (1934) p114.

9. See CARTER, Margaret, op cit (1991) Part 2 (Photographs). Several archival photographs of the interior show the ceiling streaked with water damage. This phenomenon is particularly evident in the photograph in the collection of the Provincial Archives of Alberta, E.Brown Collection No. B 2950. (date 1901)

10. See CARTER op cit (1991) Part 3, p 26.

11. See CARTER, op cit (1991) p 28.

12. See CARTER Op cit (1991) Part 3, p 12.

FIG. 3
Detail from the Virgin's cloak, Nativity scene, north wall. Typical disintegration and flaking of paint.

FIG 4.
Detail from the south wall showing thick, uneven, discoloured varnish.

FIG. 5
Another example of discoloured varnish.

FIG. 6
Test area for varnish removal.

FIG. 7
Detail of a join between two vertical boards on the south wall of the Chancel. Note the damaged original putty fill between the boards and a later attempt to cover a nail head with "plastic wood".

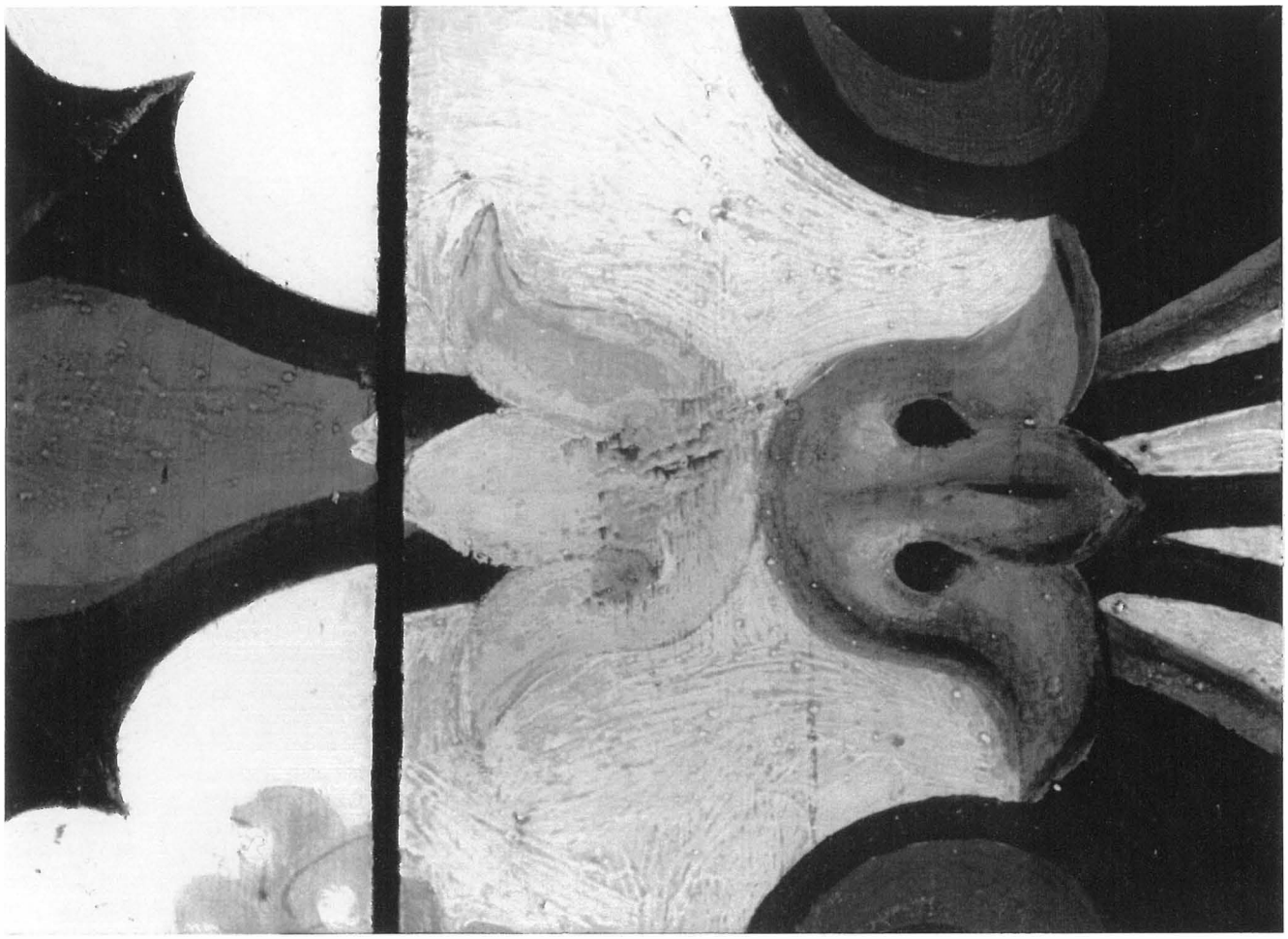

FIG. 8
Detail from Father Petitot's decorative painting on the north wall. The area on the left board has the discoloured varnish removed. Compare this with FIG. 9.

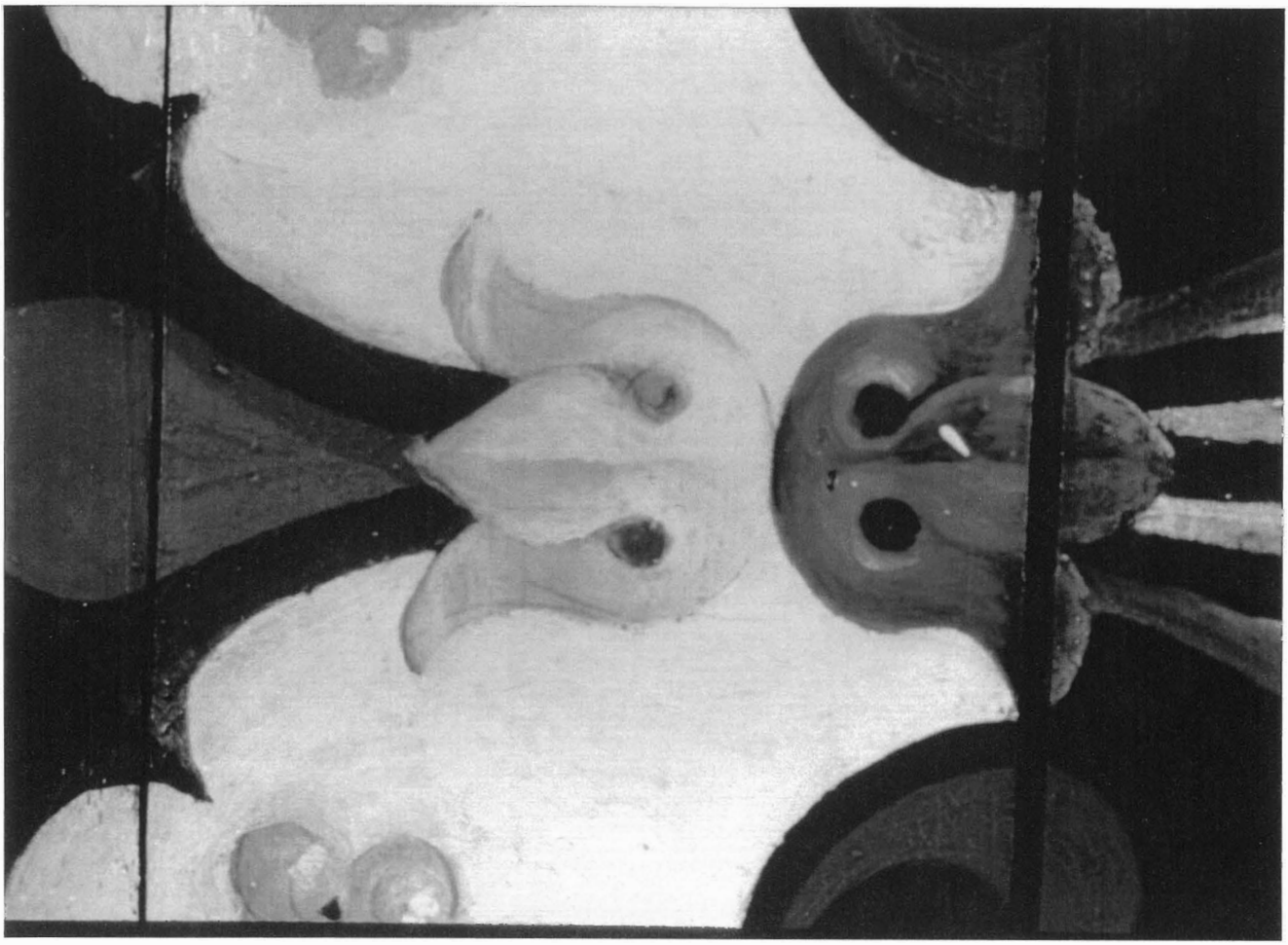

FIG 9.
Detail from Father Petitot's decorative painting on the north wall. Here the discoloured varnish has been removed. Compare this with FIG. 8.

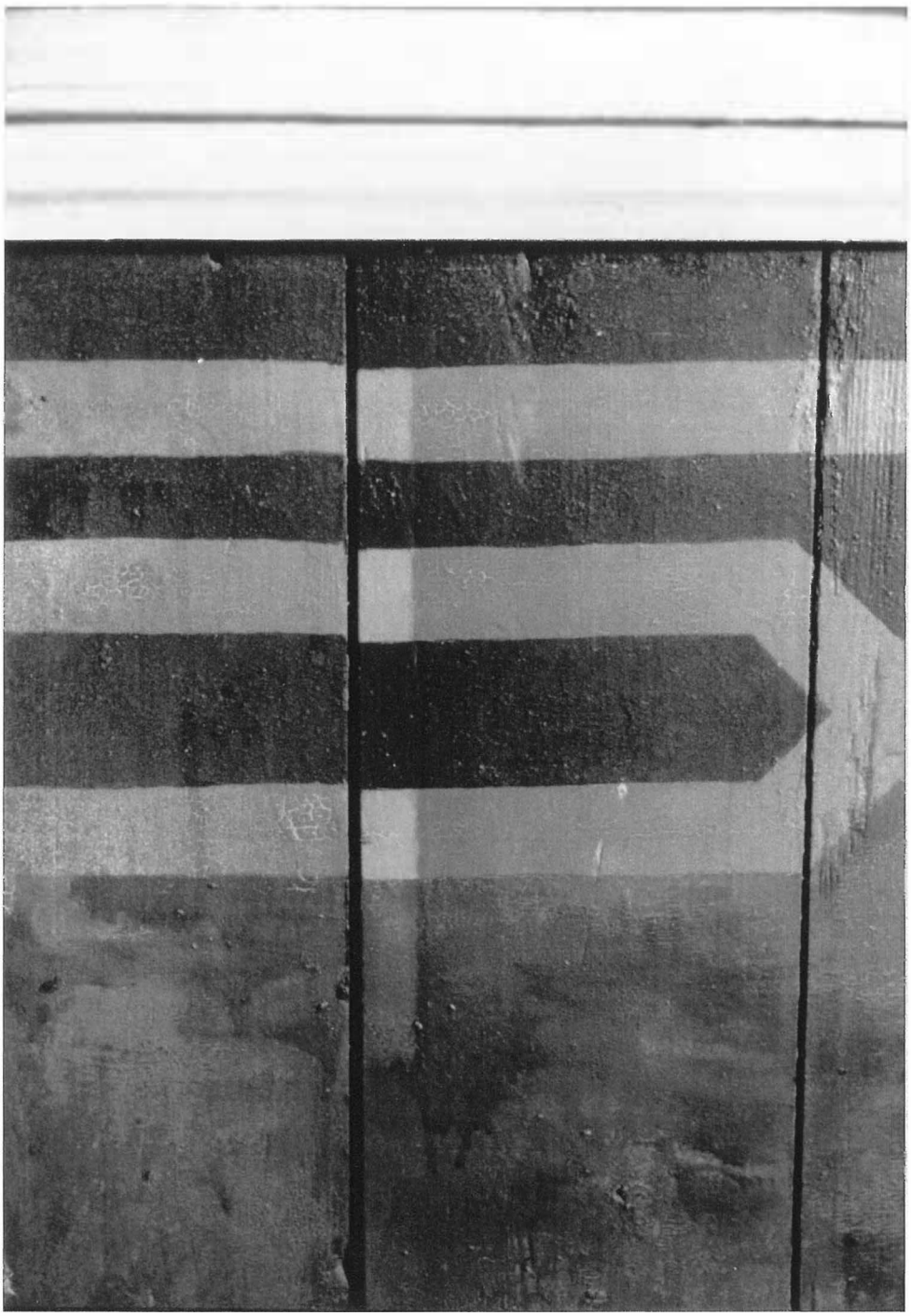

FIG. 10
Detail from the lower section of the south wallshowing the effect of surface cleaning.

FIG. 11
Detail on the lower wall of the Chancel showing the effect of surface cleaning.

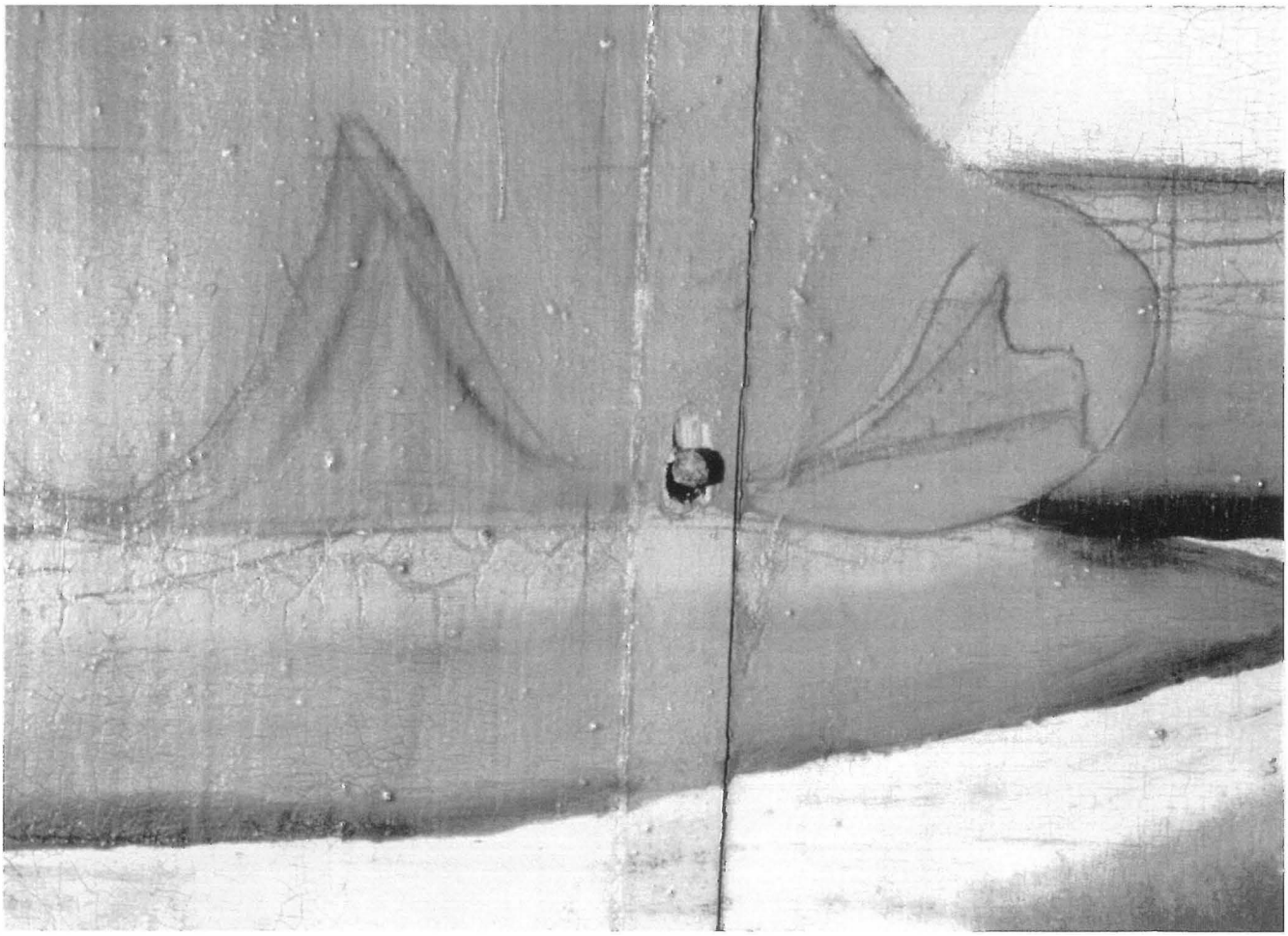

FIG. 12
Detail from the Chancel, south wall showing a nail head which protrudes from the surface. This would be set, filled and retouched.

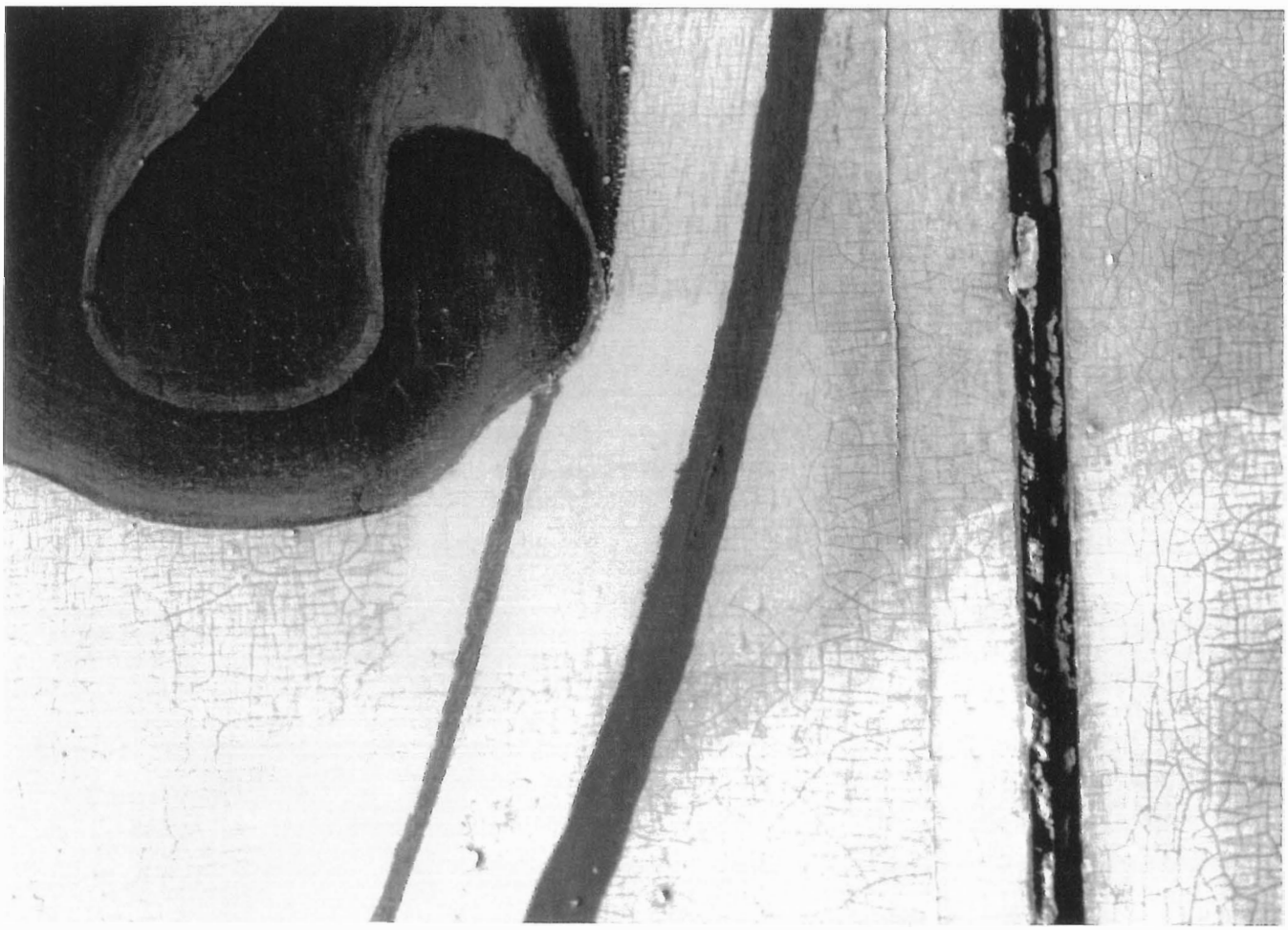

FIG. 13
Detail from the bottom of the cloak of Our Lady of Good Hope, (Chancel, south wall). This test shows that surface cleaning can remove all the grime embedded in the cracks.

FIG. 14
Detail from the Chancel, south wall. This shows an area of original painted putty fill between boards. It also shows typical "aligator" cracking in the paint layers. The latter is an irreversible condition.

FIG. 15
Detail from the Chancel north wall. This shows some more flaking which requires consolidation. It also illustrates how surface cleaning brings out the true orange colour of the original paint surface.

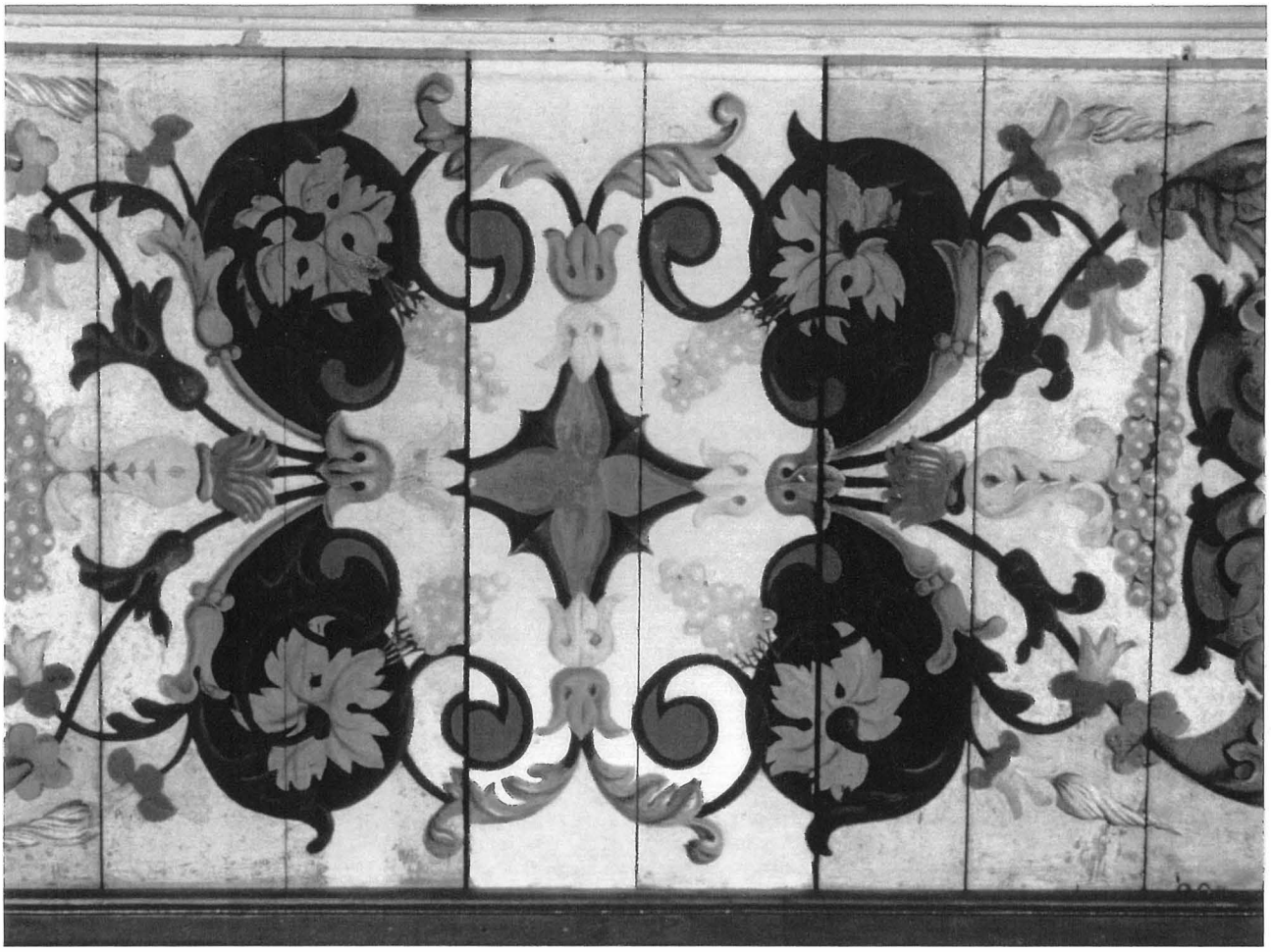

FIG. 16
Detail of Father Petitot's decorative painting on the north wall. The two central boards have had the discoloured varnish totally removed to reveal the vibrance of the original colour. This was a timed test for the purpose of calculating cost estimates.

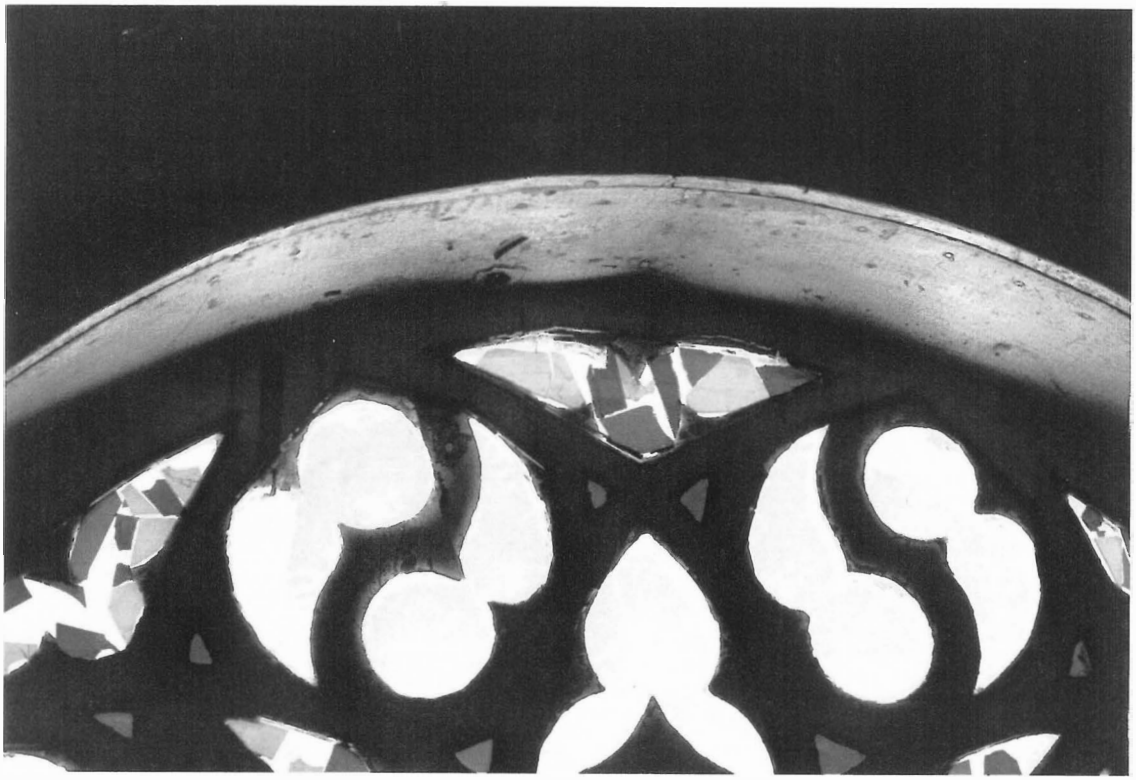

FIG. 17
Detail of a section of the Rose Window from the west wall. Fragments of coloured glass have been stuck to the surface of the glass in recent times with epoxy and silicone adhesives. These fragments may have come from the panes which are said to have been removed from the Nave windows.

FIG. 18
Detail of the upper section of the west wall. This shows an unfinished area of the painted boards as well as a section of broken carved tracery.

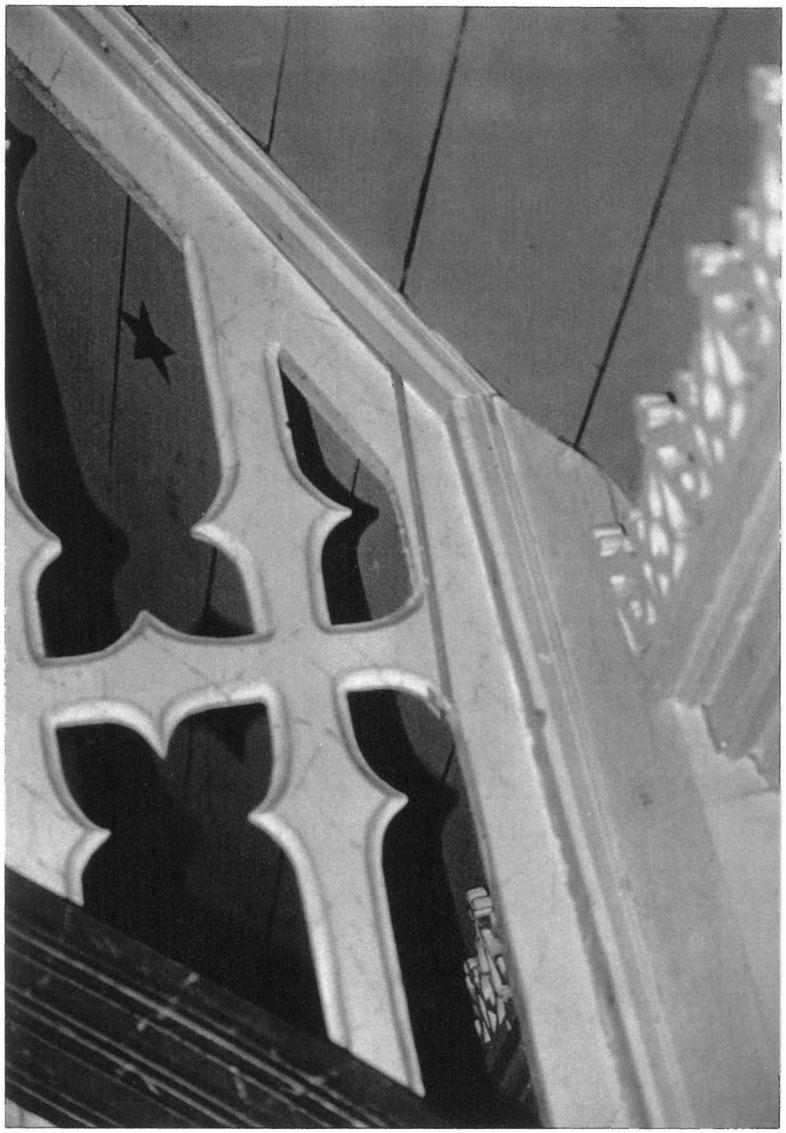

FIG. 19
Detail from the edge of the Tribune Arch where movement of the building structure has caused splits and revealed unpainted edges. Note also the blue veined *faux* marble finish which was once throughout the church. Compare FIGS. 20 and 21.

FIG. 20
Detail of the dado rail showing vestiges of underlying *faux* marbling.

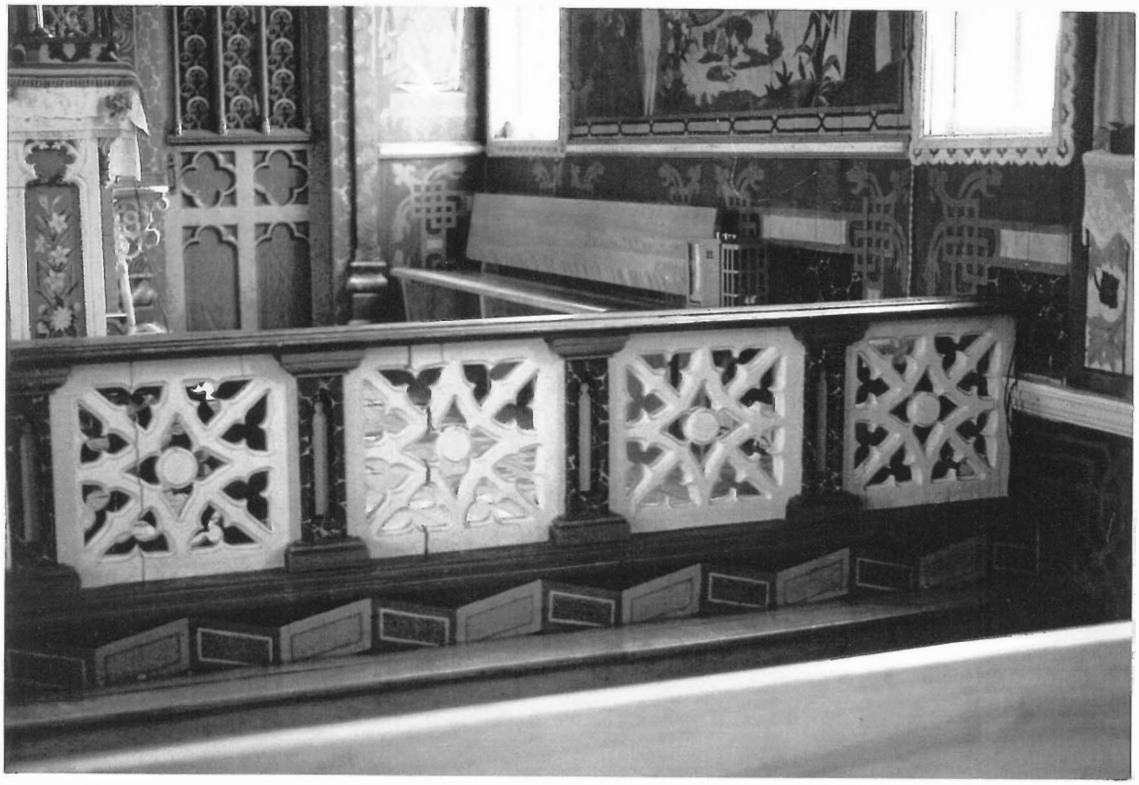

FIG. 21
Detail of the Altar Rail. The white painted and carved tracery was once finished with blue-veined false marbling. Compare FIGS. 19 and 20.

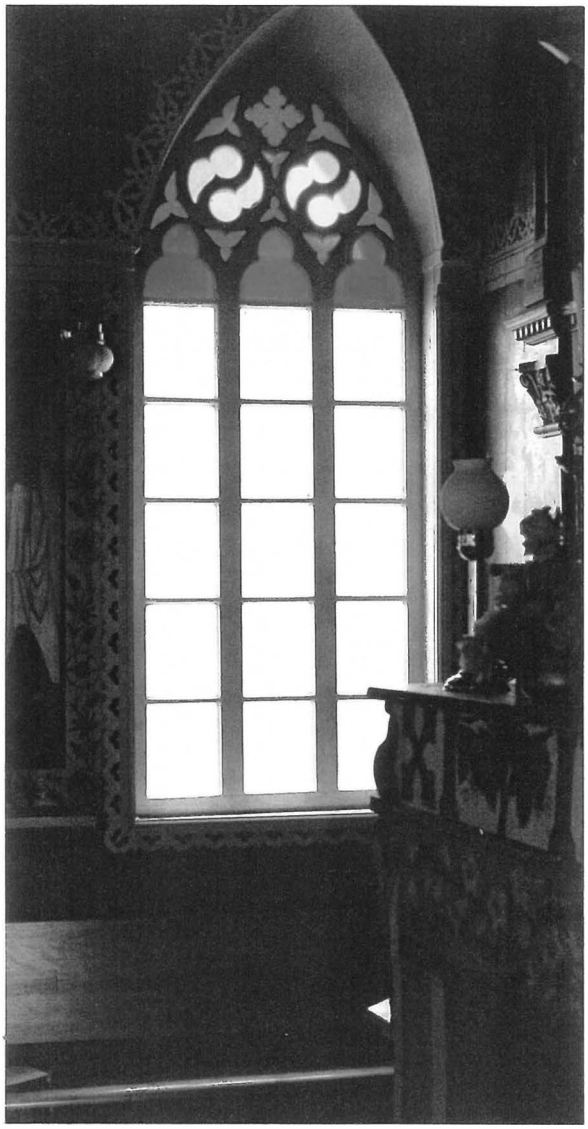

FIG. 22
Chancel window, north wall.

FIG. 23
Chancel window, south wall.

Note how the colour disposition varies.

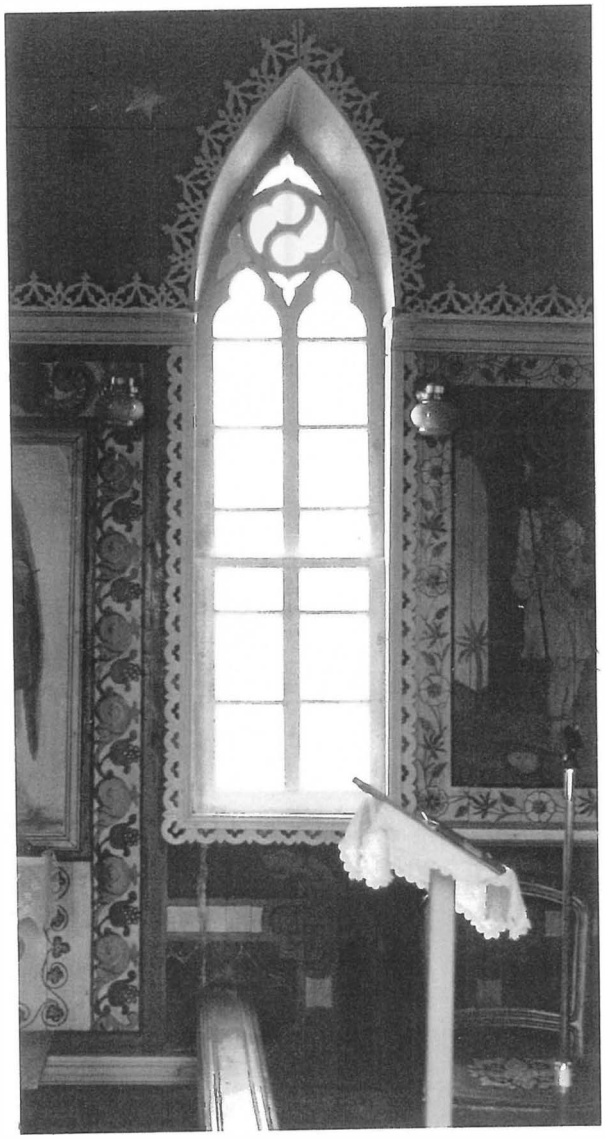

FIG. 24
Typical Nave window, north wall.

FIG. 25
Typical Nave window, south wall.

Note how the colour disposition varies.