HISTORY AND PRESERVATION OF STAINED GLASS IN THE PACIFIC NORTHWEST: THE POVEY BROS. GLASS CO. OF PORTLAND, OREGON

by

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A THESIS

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This thesis examines the operations of the Povey Bros. stained glass studio, active in Portland, Oregon from 1888 to 1929, within the context of historic American stained glass. The design and manufacturing processes used by Povey Bros. are described in detail through the analysis of period texts, historic photographs and a probate inventory compiled in 1924. The thesis concludes with a case study of the First Christian Church in Eugene, Oregon, a 1911 church containing many Povey windows. The case study includes a condition assessment of the windows at the First Christian Church and recommendations for the preservation of historic stained glass windows.

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CHAPTER I

INTRODUCTION

The term stained glass brings to mind cathedrals and castles, medieval saints and angels. Yet while stained glass is certainly an ancient art form, practiced for many thousands of years in Europe and the near East, it is also an art form which continued to develop over the centuries, changing in style and technique and waxing and waning in popularity. Most people automatically associate stained glass with Europe and particularly medieval Europe, but stained glass is also an important American art. Beginning in colonial times, when sheet glass itself was scarce in the American colonies, American artists were creating stained glass windows. Although the manufacture of stained glass remained fairly limited until after the Civil War, some very significant works were created during this early time period, and the framework was laid for the boom in American stained glass which began in the 1870s and 1880s. This period of popularity lasted well into the 1920s and saw the inclusion of stained glass in many thousands of homes, churches, public buildings and businesses throughout the country. Not only did stained glass become very popular with architects and the general public during this period, but the increased use of stained glass was also accompanied by uniquely American innovations in its design and manufacture. The scarcities of the war years and Great Depression, as well as the advent of modernism, brought about an end to this great era of American stained glass. Most stained glass that has been created since World War II has been in either the European Gothic or International Modern tradition. Therefore, the period from 1880 to 1920 represents a unique and significant period in the history of American stained glass, a time in which distinctive styles and technologies were developed and in which stained glass

assumed a particularly important role within the built environment of most American cities and towns.

This thesis will examine the design and manufacture of turn of the century stained glass windows in the United States, using the Povey Bros. Glass Co. (Povey Bros.) of Portland, Oregon as a case study. While thousands of stained glass windows were produced in the United States, particularly during the period from 1880 to 1920, very little scholarly study has focused on this important American art form. What work has been done has tended to focus on stained glass studios located in the eastern United States, and virtually no work has addressed the development of stained glass in the American west. By examining the Povey Bros. studio, one of the earliest and most successful studios in the Pacific Northwest, I will address this data gap.

Study of the Povey Bros. studio will include in-depth analysis of the methods the Poveys employed to design and manufacture stained glass windows. Understanding the ideas and techniques that went into the creation of a stained glass window in the late 19th and early 20th centuries and the social context in which they were created is key to our appreciation of these historic windows today. Attempts to analyze or preserve historic windows, like those made by Povey Bros., must first focus on their historic context and the aesthetic and technical issues that influenced their creators. With the exception of Cleota Reed's study of the Henry Keck stained glass studio of Syracuse, New York (1985), I could find no texts which examine the design and manufacture of windows in American studios. Analysis of the Povey Bros. studio, which opened 25 years earlier than the Keck studio, will supplement Reed's work by describing the techniques of stained glass as they occurred in a different time period and a different part of the country.

In addition, I will also outline preservation concerns and methods as they apply to the types of stained glass windows made by Povey Bros. The windows made during the heyday of American stained glass are quickly reaching or already have reached 100 years of

age. Although stained glass, made primarily of glass and metal, may seem like a permanent, maintenance free material, it actually requires vigilant assessment and periodic repair. The 100 year mark is a sort of benchmark for stained glass. Windows reaching this age may experience deteriorating cames, failing putty or structural stress, and they require attention to ensure that they do not deteriorate and can last for another century. Preserving stained glass windows of this type is a crucial component of the overall preservation of late 19th and early 20th century architecture, particularly historic interiors. Stained glass is a highly visible and aesthetically important feature of any building, and it cannot be replaced or removed without significant impacts to the historic nature of a building. Whereas decorative stained glass plays an important architectural role in its own right, pictorial stained glass, or stained glass that is meant to tell a story, is even more overtly integral to conveying the message intended by the builders in the creation of a particular space. Losing the stained glass means losing a large part of this message and stifling the ability of the past to speak to the present.

Although several excellent texts on the preservation of American stained glass exist (Sloan 1993; The Census of Stained Glass Windows in America 1988; Weber 1979; Vogel and Achilles 1993), none of these works have prefaced their discussion of stained glass conservation with examination of a particular studio or geographic area. Studying stained glass conservation within this regional context will bring out issues of meaning and place that are absent from more general works. Particularly in Portland, Oregon, where the Povey studio was active for 41 years, these windows constitute an important part of the city's architectural heritage and have unique significance because of their use throughout many of the city's most visible buildings. Historic preservation, in addition to being concerned with conservation of materials, focuses on preserving integrity, or the meaning of a building or object within a particular site. Examining stained glass preservation as it

relates to a particular studio, within a particular region, will allow this thesis to address these more elusive issues of integrity.

Povey glass remains extremely popular in the Pacific Northwest, where the gray weather makes the beautifully colored light of stained glass particularly appealing. Public interest in the work of the Povey studio also seems to be strong. A large number of regional museums, public buildings, houses of worship and historic homes contain Povey windows, and the people who live in and visit these places are interested in knowing more about them. By presenting a history of Povey windows, artifacts that touch the lives of many Portlanders and other people in the Northwest, I hope to interest the public in preserving this important local architectural legacy.

This study will be useful to churches, business owners, public agencies and people who have Povey glass in their homes. While it will primarily have a regional appeal, the work may also provide a point of comparison for research on other studios or other areas of the country. Sharing data makes research valuable, and the results of this study will be presented to the Census of Stained Glass Windows in America and the Stained Glass Association of America, in hopes that it will contribute a Northwest perspective to national studies of American stained glass.

Research Questions

The introductory portion of this thesis will provide a background of the stained glass industry in the United States. Research questions central to this section will be: When and how did the stained glass industry develop in the United States, and how did it change over time? How did American stained glass differ from European stained glass? What was the social context for the production of American stained glass windows? And, what technologies and cultural attitudes brought about the boom in American stained glass that occurred from approximately 1880 to 1930?

Once this background has been established, the case study of the Povey Bros. Glass Co. will seek to describe in detail the operation of a turn of the century stained glass studio. First, a brief history of the studio will describe the arrival of David and John Povey in Portland, the establishment of the studio in 1888 and outline the function of the studio until its closure in 1924. Next, I will seek to establish how the Poveys created their window designs. What were the major influences on Povey Bros. stained glass? How did David Povey's education at the Cooper Union Institute in New York City and his travels in Europe influence the designs he created? Were the Poveys influenced by, or work directly with, architects and/or window patrons? Did they turn to books of design or art to find inspiration? How often were designs re-used? Finally, the methods that the Poveys used to realize these designs will be described. What tools and techniques were used in making these stained glass windows? Who worked on the windows, and how was personnel organized within the workshop? Where did materials and supplies come from, and how were they used? All of these questions will seek to explain the inner workings of the studio and the qualities that made the Povey Bros. Glass Co. such a successful operation in its day.

The preservation component of the thesis will be a guide for owners of Povey Bros. windows. It will seek to describe the special qualities of Povey windows and how they can best be preserved. In addition to examining the important physical aspects of preservation, such as bowing, cracking and paint deterioration, this thesis will attempt to address some of the more theoretical issues in stained glass preservation. How can the integrity of a stained glass window, within a building and site, best be preserved? Has the meaning of the window within its context changed over time, and how has this impacted the window? This section should provide stained glass owners with the knowledge necessary to make practical and thoughtful decisions about their windows.

Methods

Development of an historical context will be based on a thorough review of the available literature. While the study of American stained glass has been somewhat limited up to this point in time, adequate sources exist to provide the background necessary for this thesis (Sloan 1993; Sturm 1982; Farnsworth 1995; Lloyd 1963; Wilson 1986; Frueh and Frueh 1998). These books provide information on the general history of the American stained glass industry (Lloyd, Sloan, Farnsworth), particular types of American windows (Wilson) and on the stained glass of comparative regions (Sturm, Frueh and Frueh).

Analysis of the Povey Bros. studio will be based largely on Probate Records dating from 1924, the year David Povey died. These records provide a detailed inventory of everything that was in the studio at the time of his death. In addition they include several months worth of the studio's accounts, including names of clients, employees and suppliers. It is extremely fortunate that these Probate Records exist, as the studio's own records and drawings were reportedly discarded by the W.P. Fuller Co., which bought out the studio a few years after David Povey's death. Additional invaluable information about the studio comes from interviews with the Povey's grandchildren, who have been most gracious about sharing their family's heritage. I have had the good fortune to be granted access to the papers of Polly Povey Thompson, David Povey's youngest daughter. Polly Povey Thompson, who became a successful Portland architect, worked in the studio during her youth and served as the custodian of the studio's history all her life. She was planning to write a book about the history of the studio when she passed away in 1994. Her notes and papers have been extremely helpful in conducting this research.

Preservation recommendations have been based in part upon established guidelines, including the Secretary of Interior's Standards and the *Standards and Guidelines for the Preservation of Historic Stained Glass Windows*, published by the Stained Glass

Association of America (1995). Additional information has come from a review of the literature on stained glass preservation, particularly Julie Sloan's excellent book, *Conservation of Stained Glass in America* (1993). Valuable input has also come from consultation with stained glass restoration professionals, most especially, David Schlicker, a Portland stained glass restorer and artist and member of my thesis committee.

The discussion of stained glass preservation will center around an illustrative case study which will provide concrete examples of the issues discussed. I have chosen to focus on the First Christian Church, located at 1166 Oak Street in Eugene, Oregon for the purpose of this case study. This American Renaissance style church was designed by New York architect George W. Kramer in 1911. It contains numerous windows made by Povey Bros., as well as some 19th century windows from a previous church. The Povey windows at the First Christian Church are generally in good condition, but they are facing some of the issues typical of aging stained glass. In addition, they are an integral part of a landmark downtown building which is surrounded by a changing environment. The preservation analysis of the Povey windows at the First Christian Church will provide the final component of this thesis.

CHAPTER II

HISTORICAL BACKGROUND

The craft of stained glass has existed for many thousands of years. Although generally associated with the rise of Christianity, stained glass was being produced far earlier than the time of Christ. Many books have addressed the ancient origins of stained glass and its rise in medieval Europe (Lee et al 1976; Lee 1977; Armitage 1959). This thesis does not attempt to restate the complete history of stained glass as presented in these works; the topic has already been adequately covered, and it is not the focus of this text. A brief summary of the origins and European history of stained glass is included, however, as a preface to the discussion of stained glass in America, which, at least in the beginning, was highly influenced by European trends. Understanding stained glass as it was practiced in the United States during the late 19th and early 20th centuries necessitates a knowledge of stained glass as it first came to exist on the African and European continents.

The term "stained glass" can cause some confusion. Some windows contain colored glass, but are not painted or "stained." Others are composed only of clear glass, but are laid out in a decorative pattern. For the purpose of this thesis, the term will be used in the most common sense in which it is understood today: that is, all windows composed of colored and/or painted glass and held together by a framework made of metal (called cames). This definition includes the "art glass" windows made in Victorian America, which contained colored and clear glasses with little or no paint, as well as the more heavily painted works typical of the Renaissance. It does not include "Queen Anne" sash, or colored glass set into a wooden frame, usually with small colored squares

surrounding a larger clear square. The term is also not applicable to the sorts of clear glass leaded windows found in many Tudor or English Cottage style homes, although some of these windows, particularly if they were beveled, would have been made in stained glass studios.

European Stained Glass

Ancient Origins

Glass was first used by the Egyptians, Babylonians and Phoenicians around 3000 B.C. It is believed that the discovery of glass making evolved from the use of glass-like pottery glazes which melt and fuse when exposed to high temperatures. Glass was first used to make decorative and practical objects. This early glass was always colored because of impurities present in the raw materials: silica (sand, quartz or flint), flux (soda, potash) and a stabilizer (limestone). Glass was first used in window openings in the Near East, where small pieces of glass were set in alabaster, which was then carved to reveal these sparkling inserts. The Romans may have been the first to use stained glass as we understand it today, a network of glass held together by metal. Using glass imported from Egypt, they built small windows of glass and bronze in the first century B.C.

The Rise of Christianity

The Edict of Nantes, proclaimed by Constantine in A.D. 313, allowed the Christian religion to be practiced freely. With this new tolerance, church buildings were constructed, and stained glass began to be incorporated into and associated with these Christian houses of worship. One of the earliest records describing stained glass windows dates to circa A.D. 337 and refers to the first church of Saint Paul in Rome; "in the windows are displayed glass of varied colors, as brilliant as the field of flowers in

Spring" (in Lloyd 1963:17). As Christianity spread north and westward, so did stained glass. Descriptions from the 600s and 700s describe cathedrals with stained glass windows in England and France (Sloan 1995:36). "With the elevation of church architecture to one of the highest forms of art and worship in the Romanesque age (the tenth and eleventh centuries), stained glass became increasingly more important" (Sloan 1995:36). Archaeologists have excavated fragments of stained glass which date back to the ninth and tenth centuries at Jarrow, England and Lorsch, Germany (Sloan 1995:35). The earliest surviving stained glass windows date from A.D. 1065 and are found in Germany at the Augsburg Cathedral. These five windows, depicting five prophets, are sufficiently advanced in design and manufacture to indicate that the craft of stained glass must have been well established for some years by the time that they were made.

Gothic Stained Glass

In circa 1140, Abbot Suger began construction of the Abbey Church of Saint Denis in France. This church was one of the very first Gothic buildings, and Abbot Suger is in large part credited with the transformation from Romanesque to Gothic architecture that occurred at this time. The Abbey Church of Saint Denis contained stained glass windows depicting a number of Biblical stories, including the discovery of the infant Moses in the rushes and Moses with the Brazen Serpent. By this time, the Catholic church had recognized light as a powerful theological symbol, and stained glass was used to transform and manifest light. Windows came to serve a didactic role, portraying the lessons of the catechism in powerful, visual forms; as Abbot Suger put it, the windows served "to direct thought by material means toward that which is immaterial" (in Hill et al. 1976:15). The brilliant windows displayed biblical scenes and images in a dramatic way easily legible to the largely illiterate medieval population.

The use of the Gothic arch opened up large expanses of wall to stained glass. Rounded Romanesque arched windows had been relatively small. The pointed Gothic arch allowed for a much greater window opening, and stained glass was quickly enlarged and elaborated to fit the new size and shape. The new possibilities created by the Gothic arch in part account for the splendor of the stained glass what was created in the 12th and 13th centuries.

Several important revolutions in stained glass technology occurred during the Gothic era. Silver stain, a staining method originally invented in Egypt, began to be used by European stained glass artists at the beginning of the 14th century. This material, derived from a silver salt, colored glass a bright golden yellow when it was fired, while maintaining the transparency of the glass. Colored glass could also be changed from blue to green or red to orange by the use of silver stain, making a much wider range of colors available. Toward the end of the Gothic period, the technology of glass blowing was improved, allowing for the creation of larger pieces of glass. Larger pieces made fewer lead lines necessary in window construction. The invention of flashed glass, white glass coated with a thin layer of colored glass, also decreased the necessity of lead lines. Flashed glass was etched to reveal the white glass under the colored layer, creating two colors on one piece of glass.

As paper making technology spread into Italy from Moorish Spain, several aspects of stained glass design were revolutionized. Cartoons, or the drawings which were used as templates for stained glass windows, had previously been drawn on whitewashed boards. The paper patterns were much more easily stored, transported and re-used. The growing use of paper and the invention of printing presses also had a tremendous impact on stained glass. Early books like the *Biblia Pauperum* (Poor Man's Bible) and *Speculum Humanae Salvationis* (Mirror of Human Salvation) contained many woodcut illustra-

tions which came to serve as sources for stained glass designs (Lee et al. 1976). These books and preserved patterns created a more standardized set of sources for stained glass designs.

Renaissance Stained Glass

Many artists and art historians are of the opinion that the quality of stained glass design and manufacture suffered a great decline from the mid 1300s through the period of the Renaissance. Several factors contributed to this supposed decline, including the rise of nation states, the weakening power of the church, the decimation caused by the Black Death and, beginning in the 15th century, the advent of the Renaissance. Renaissance art stressed realism, in contrast to the abstract qualities of Gothic art. During this period, stained glass evolved to reflect this new proclivity. Rather than the small, brightly colored pieces of glass used in Gothic windows, Renaissance windows used larger, clearer pieces which were much more heavily painted. Painting the glass allowed artists to create the more realistic sort of pictures which were becoming the standard. Stained glass became closely linked to portrait painting, and many windows were produced by artists who were primarily painters instead of by glaziers who worked only in glass. Art historians generally feel that the works created by these painters were ill suited to the medium of glass. The transmission and transformation of light is a large part of the special beauty of stained glass, and these heavily painted windows were designed, like any painting, to be viewed in reflected light rather than transmitted light.

This transformation of stained glass was made possible by the invention of colored enamel paints in the 16th century. While medieval craftsmen had used a sort of glass paint made of iron filings, this came in only a blackish brown color and had primarily been used to outline facial details. The new enamels, made with iron sulfate or

sienna earth mixed with ground glass, produced a wider range of colors. These paints could be applied to glass like oil paints, and then fired to fuse the paint to the glass. The use of enamel paints made much greater detail possible, contributing to the trend toward realism. Glaziers gradually moved away from the use of the brilliant Gothic glass colors and opaque stains as enamel paints became popular. With enamel paints, lead lines were also less critical to the design (Sloan 1995:38). The 16th century invention of the diamond glass cutter further decreased the necessity for lead lines by allowing for the easy cutting of large pieces of glass. Prior to this invention, glass had been cut by laying a hot piece of metal across a line of water on the glass. The water conducted the heat into the glass, and the temperature change caused a fracture. This method was highly unreliable and more often than not resulted in small, shattered pieces. The diamond cutter was much more accurate, and windows were increasingly constructed of a smaller number of larger pieces of glass. "As an entire scene could be painted in colors on a single piece of glass, all the old techniques of flashing, abrading, cutting and leading were rendered unnecessary" (Sturm 1982:11).

This trend towards an emphasis on paint rather than glass continued into the Baroque era of the 17th and early 18th centuries, a time berated as "the complete demise of the stained glass craft" (Lloyd 1963:29). Other factors contributed to this "demise," namely, the rise of Protestantism and the Reformation. Many Protestant groups associated stained glass with papism and decadence. Not only did the manufacture of new windows slow during this time, but many older windows were destroyed by religious reformers. In England in 1646, Oliver Cromwell ordered troops to destroy church windows and stopped the production of any new stained glass. In 1636, during the course of the Thirty Years War, Cardinal Richelieu ordered the destruction of the palaces of Lorraine, including the glass shops where most of Europe's glass was produced. The

resulting lack of materials greatly contributed to the continuing decline in the stained glass craft.

Nineteenth Century Stained Glass: The Gothic Revival

Not until the 19th century would stained glass be revived. In the intervening centuries, the craft was largely unpracticed and forgotten. However, in the beginning decades of the nineteenth century a growing interest in Gothic architecture, coupled with a trend toward the romantic and picturesque and away from the classical and realistic, would lead to a renewed interest in stained glass. The architectural style known as the Gothic Revival became popular throughout Europe, championed by theorists and artists like John Ruskin, William Morris, A.W.N. Pugin and Eugéne Viollet-le-Duc. These thinkers generally favored a return to what they saw as their country's native architecture, the Gothic architecture of the middle ages. They criticized the classically inspired architecture which was so popular in the 18th century as coldly rational and ill suited to northern climates and architectural needs. Great debates raged amongst proponents of the different styles, with very seriously written texts like Heinrich Hubsch's (1828) *In What Style Should We Build?* arguing the advantages and disadvantages of Gothic versus Greek. Advocates of the Gothic, like Hubsch, felt that it could more flexibly meet modern needs for larger buildings and that its steeply gabled roofs and large pointed window openings were more suitable to northern Europe's rainy and dark climate. A.W.N. Pugin's (1836)*Contrasts: or a Parallel between the Noble Edifices of the Fourteenth and Fifteenth Centuries, and Similar Buildings of the Present Day: Shewing the Present Decay of Taste: Accompanied by Appropriate Text* was an even more biting attack on the classical. Pugin, a devout Catholic, equated Gothic architecture with Christianity and morality and used the term "Christian Architecture" to describe the Gothic. Classical

architecture, in addition to being pagan, was imported and foreign. Gothic architecture, on the other hand, was considered to be a native art form (White 1962:31).

An organization known as the Cambridge Camden Society was extremely influential in popularizing the revival of Gothic architecture. Founded in 1836 by a group of Cambridge undergraduates, the Cambridge Camden Society dedicated itself to "ecclesiology," or the study of church architecture. As the Society was a devoted proponent of Gothic architecture, this primarily meant the study of Gothic church architecture. Despite its humble beginnings, the Society grew rapidly and could boast over 500 members by the middle of the century. Members were encouraged to visit medieval churches and record them using special inventory forms call "Church Schemes" which required descriptions of all church features, including windows; the results were then compiled and analyzed for common trends and unique features. The Society operated a successful journal, *The Ecclesiologist,* which published the results of these studies. This publication and others put forth by the Society, including *A Few Words to Church Wardens on Churches and Church Ornaments,* described the Society's highly opinionated view of church building and church restoration. The Gothic, of course, was recommended above all other styles, and, in particular, the Society's version of Gothic architecture was promoted. The Cambridge Camden Society equated this version of building with morality and Christianity and was quite successful in promulgating this view to the clergy and the public. The Society was also concerned with the decorative arts used within churches and devoted some of their studies to stained glass. Glaziers were encouraged to turn to ancient windows for models and to recreate their work as exactingly as possible (White 1962:188-189). The influence of the Cambridge Camden Society quickly spread to other countries, and in the United States, where it came to be known as the Ecclesiological Society, it would have a similar but less overwhelming influence on 19th century architecture and arts (White 1962).

At the same time that the renewed interest in Gothic architecture was focusing attention on stained glass, the birth of the restoration movement was creating further interest in this art form. Prior to the 19th century, old buildings had for the most part been altered or destroyed as needs demanded. In the 19th century, the romantic movement had a strong current of antiquarianism. Popular authors like Sir Walter Scott, John Britton and Thomas Rickman created interest in the medieval churches and castles scattered across England. Newly created organizations like the Cambridge Camden Society and the Society for the Preservation of Ancient Buildings, which was founded by William Morris, advocated for the preservation and restoration of these monuments. In France, the architect, artist and writer, Eugéne Viollet-le-Duc began studying and restoring medieval cathedrals during the 1840s. His *Dictionnaire raisonné de l'architecture francaise*, published in 1868, included a lengthy discussion of stained glass, and French stained glass artists like Thomas Francois Gérent, who worked with Viollet-le-Duc, soon began attempting to recreate the stained glass windows of the medieval period. While the 19th century concept of restoration was somewhat less careful than the modern understanding of the term, the idea of respecting the original intentions of ancient builders was a new and important trend in architecture, and it had a significant impact upon the production of Gothic Revival stained glass.

The Arts and Crafts movement was an important 19th century development in architecture and decorative arts that grew in part out of the Gothic Revival. In addition to being fascinated with ancient buildings, artists and architects were increasingly interested in medieval craft practices. In reaction to the growing industrialization and mechanization of Europe, members of the Arts and Crafts movement resolved to revive handcrafting. William Morris has been recognized as one of the key leaders of this movement. In addition to being a painter and graphic designer, Morris was very inter-

ested in stained glass, and his studio, Morris, Marshall, Faulkner and Co., later Morris and Co., produced some of the most important and influential glass of the 19th century. Many of Morris' windows were designed by the Pre-Raphaelite painter Edward Burne-Jones. Burne-Jones' elegant and linear style drew on Gothic forms but used them in a most innovative way, and the windows that he produced founded an original 19th century manner. While Morris' large and successful studio sometimes employed the mass production techniques abhorred by the Arts and Crafts movement, "it was mostly due to Morris that the importance of the glazier in the creation of a stained glass window was once more recognized, and under his influence leading became once more part of the design" (Armitage 1959:60).

As Gothic-inspired architecture became increasingly popular in the 19th century, interest in other arts and crafts associated with the medieval period grew as well. Naturally, as one of the most visually prominent architectural arts, stained glass became necessary to the creation of Gothic Revival buildings. Initially, this renewed interest in stained glass was met with a number of problems. Virtually no artists were practicing the craft, and even fewer remembered the techniques of medieval stained glass manufacture. In addition, glass that matched the deep and beautiful colors of the medieval pot metal glass no longer existed. Fortunately, a British lawyer and amateur archaeologist named Charles Winston applied himself to this difficulty. Winston became intrigued with the idea of reproducing medieval glass exactly. In the early 1850s, he submitted samples taken from English cathedrals to the Royal College of Chemistry for chemical analysis. Then, he had the Whitefriars Glass Works use these chemical formulas to recreate the medieval recipe. By 1853, he was producing and selling "antique glass," and the problem of appropriate materials had been solved (Harrison 1980:22-23).

While many 20th century critics have dismissed Victorian stained glass as vapid and sentimental, the windows created in the 19th century represented very important

changes in stained glass design and manufacture. The renewed interest in Gothic architecture, the restoration movement and the production of pot metal glass all contributed to the revival of stained glass as a significant art form.

> The popular idea that the secrets of medieval glass had been lost and that equally good contemporary glass could not be produced might have been true of the beginning, but it was certainly not so by the end of the nineteenth century, and in fact today the range of colour and quality of glass far exceeds anything that the medieval craftsman was able to produce. It must in fairness be emphasized that the greatest advance was achieved in the despised Victorian era. (Armitage 1959:60)

The innovations of the 19th century allowed stained glass to grow and flourish. While in the period from 1800 to 1830 there were fewer than a dozen glass artists working in Britain, the 1841 census recorded 108 and the 1851 census 531 (Harrison 1980:12). The growth of the industry peaked around 1870, but it continued in popularity and success until the 1920s. The large numbers of windows produced during this time period of course vary in quality, but many could be considered great works of art, and all are representative of an extremely important period in the history of the craft of stained glass.

American Stained Glass

While the American stained glass industry took some time to become established, by the 19th century American glass makers were producing large numbers of stained glass windows which rivaled European windows in quality of design. The American industry was initially highly influenced by European stained glass trends, and in fact many windows were imported from Europe during the 18th and 19th centuries. But by the end of the 19th century, U.S. studios were producing stained glass windows that were uniquely American in inspiration and were supplying the majority of windows for the domestic market.

Early Glass Industry in the United States

While glassmaking was one of the earliest enterprises undertaken in the American colonies, it took several centuries for a successful stained glass industry to become established. Glassworks were founded at Jamestown and by the Spanish friars at Puebla de los Angeles, Mexico in the 16th and early 17th centuries (Lloyd 1963:29). The American Revolution disrupted the industry, but, once freed from British restrictions, glassmaking and other American businesses began to grow. The War of 1812 further reduced foreign influence and encouraged native industry, allowing glassmaking centers to grow up around the Monongahila River near Pittsburgh, and in New Jersey, Maryland and New England. By the 1830s and 40s, many different types of glass were being produced domestically, creating the supplies necessary for stained glass (Wilson 1986).

Although glass was being produced in limited quantities during the colonial era, almost none of it was used to make stained glass. The time period in which the Americas were colonized occurred largely before the revival of stained glass on the European continent, so naturally settlers coming from Europe were not especially interested in stained glass. Settlers were more concerned with producing bottles and other utilitarian objects. In addition, many of the early colonists were Puritans or members of other Protestant sects, groups that favored austerity in church design. Not until the economic and social changes of the 19th century would stained glass become an important American art form.

Origins of the American Stained Glass Trade

While colonists from England were largely uninterested in stained glass, Dutch settlers did bring with them a tradition of stained glass manufacture which they maintain in the New World. Unlike most of the other countries in Europe, the Netherlands had

continued to produce stained glass during the 16th and 17th centuries, mainly in the form of heraldic crests. In 1638, a Dutch settler named Evert Duyckinck came to New Amsterdam and set up a stained glass business producing these family crests. This is the earliest known stained glass made in the colonies. A few other glass makers set up glass shops near the original one established by Duyckinck in an area that came to be called "Glassmakers Street." Most of this colonial-era stained glass, virtually none of which still exists today, consisted of painted heraldic crests in the European mode or more vernacular windows which were usually geometric and contained many heavy roundels (Lloyd 1963).

Even though the American Revolution disrupted the glass industry, the elimination of the British Trade Acts allowed glass manufactures to expand and thrive after the war. Most churches still imported stained glass windows from Europe, and American craftsmen were primarily responsible for installing this imported glass or creating small leaded pieces of clear and colored glass. However, as the glass manufacturing industry grew, providing the necessary materials for stained glass making, and as the influence of the Gothic Revival began to be felt in the United States, American glaziers began producing more and larger works in stained glass (Lloyd 1963).

William Jay Bolton is generally recognized as the first significant American stained glass designer. A self taught stained glass artist, Bolton's first windows were made for his family's chapel in Pelham, New York in 1843. This was just 14 years after English artists began experimenting with the revival of medieval styles. Possibly as early as 1844, Bolton received a commission to design and build 50 windows for the Church of the Holy Trinity in Brooklyn. The architect of this church, Minard Lafever, was known for both his classical and medieval designs and chose to build the Church of the Holy Trinity in the Perpendicular Gothic style. Bolton's windows used elaborate medieval

tracery and pot metal glass, but the figures were designed in the 16th century "Cinque Cento" style. As James Sturm points out, "Bolton helped synthesize the Gothic Revival style in glass, which consists basically of a combination of late medieval and Renaissance techniques and styles" (1982:21). The subjects spanned Biblical history and included a number of "Jesse Tree" windows which depict the ancestors of Christ seated in a large tree. Bolton probably completed this commission around 1848, a remarkably short period of time considering the number of windows and the fact that he and his brother John probably built all of the windows themselves. Bolton accepted only a few other commission before he decided to enter the clergy and end his career in stained glass (Clark 1992).

Stained Glass and American Eclecticism, 1880 to 1930

The period from 1880 to 1930 has been referred to as the American Renaissance, a term implying both historicism and artistic creativity, nationalism and freedom of thought. It was a time of growing wealth and increasing interest in art and architecture. Designers continued to draw from historical styles but did so with a new breadth and freedom, which resulted in the creation of a multiplicity of unique styles. This period has also been referred to as the age of eclecticism. While some 20th century critics, fixated on the modern ideal of originality, have looked down upon this time as overly romantic and historicist, at the time "to choose the best from all cultures, even our own, was seen as a way to create a great American civilization" (Pilgrim 1979:111)

During this time period, the American stained glass industry blossomed. With the invention of a unique type of multi-colored glass, called opalescent glass, in the late 1870s, stained glass artists began creating completely new types of stained glass windows, windows which were distinctly American. Stained glass became immensely

popular with builders and with the public, and as Julie Sloan says, "between 1880 and about 1910, opalescent windows were ubiquitous in American architecture, found in virtually every building from the tenement to the mansion, from the courthouse to the cathedral" (1990:42). The windows that were created during this time period, many of which are still in their original locations, constitute a highly significant historic resource. Unfortunately, until very recently very little study of these windows has been done (Wilson 1986; Farnsworth 1995; Frueh and Frueh 1998). As noted by the Census of Stained Glass Windows in America, an organization devoted to recording historic American stained glass, "it is primarily from the years 1870 to 1930 that thousands of windows need to be surveyed, as these are the windows that are most endangered and for which we have the least documentation" (Farnsworth 1995:8). A Philadelphia pilot study conducted for the Census found 43 pre-1870 windows, 2,808 windows dating from 1870 to 1930, 260 windows dating from 1931 to 1945, and 543 windows dating from 1946 to 1994 (Farnsworth 1995). As illustrated by this study, the period from 1870 to 1930 was the most prolific era of American stained glass. Windows built during this time span by artists like Louis Comfort Tiffany, John La Farge, J.R. Lamb Studios, Povey Bros. and many other American glassmakers, are not only numerous, but they are also unique art forms reflecting a distinctive cultural and architectural period, one especially rich in historic allusions and creative interpretations of the past and the present.

Society and Culture at the Turn of the Century

Certain changes in the American economy as well as changes in culture and artistic tastes facilitated the enormous growth of the American stained glass industry during the late 19th century. This was a time of rapid societal and demographic change. The closing frontier and the growth of industry brought about a shift in the character of

the United States, which until this time had still been largely rural. Cities grew fivefold between 1870 and 1910, reflecting the rising population and growing urbanism. Numerous inventions, including the telephone, electricity, and indoor plumbing, dramatically changed the way people lived. During this time, the U.S. was recognized as a world power as growing industrialism and the appearance of large corporations made the U.S. a wealthy and powerful nation.

The American public became increasingly cosmopolitan during this time. City living and growing wealth created interest in cultural events, and institutions like libraries, museums and universities all flourished. World travel became more possible, and the elite members of society who were able to voyage to Europe and other parts of the globe returned with an admiration for European and Oriental art and an interest in the Italian Renaissance. Artists also traveled to France, Italy and England to study the works of old masters and contemporaries. Architecture became increasingly professional, with students traveling to the Ecole des Beaux Artes in Paris and attending the first architectural schools in the U.S.

The very wealthy, "robber baron" class which arose during this time was the most able to patronize artists and architects, but the general public was also becoming more educated about architecture and interior design as pattern books and other popular publications became available. As H. Weber Wilson points out of the late 19th century, "it was a time that saw the formation of that most American of concepts: consumerism" (1986:18-19). The rise of a fairly well off middle class made the construction of family homes a more realistic dream for many Americans. New methods of construction like the balloon frame and the use of materials like iron, glass and terra cotta made building less expensive and increased the array of decorative materials from which people could choose. "The desire to have all the appurtenances of the extremely wealthy and to imitate

the new styles of decorative art filtered down to all levels of society" (Pilgrim 1979:144). Stained glass was clearly one of those appurtenances. At this time, "colored glass became an affordable commodity rather than an expensive luxury" (Wilson 1986:4). More and more people began to include stained glass in their homes, and stained glass studios and even mail order companies expanded to accommodate this demand.

An increase in demand for stained glass was also fueled by a surge in church building that occurred after the Civil War. Memorial windows became fashionable, and wealthy donors contributed money for their installation in churches (Farnsworth 1995:7). "The more liturgical denominations - Catholic, Episcopalian, Lutheran - lead the way and religious art came into its own" (Lloyd 1962:54). The Ecclesiological Society, like the Cambridge Camden Society in England, advocated particular types of church architecture and art, including stained glass. Churches built during this period, while still influenced by European trends, were clearly within the eclectic American tradition that was then being established.

Economic factors clearly also had an impact upon the production of stained glass. Growing American wealth, both in the upper and middle class allowed consumers to purchase stained glass. At the same time, rising tariffs on imported European stained glass, which had previously dominated the market, allowed American studios to compete more successfully. A tariff of 45% on imported stained glass was instituted in 1883, substantially raising the 30% tariff established in 1861 (Lloyd 1962:102-103). The building boom which occurred in the 1880s-90s, in combination with these tariffs, allowed the American stained glass industry to become firmly established.

All of these changing economic and cultural conditions resulted in a climate that was highly conducive to the production of popular architectural art. It was a period "when an abundance of money, manpower, and materials resulted in spectacular national

growth;" this abundance in turn contributed to creation of "delightful, brilliant glass-work" which was a "manifestation of the uninhibited, eclectic American spirit of the last half of the nineteenth century" (Wilson 1986:1).

Stained Glass in Victorian and Eclectic Architecture

The late 19th and early 20th centuries saw the production of some of the most diverse expressions of American art and architecture ever created. Buildings were constructed in a myriad of different styles, greatly diversifying and enriching American streetscapes. During this time, architecture became increasingly professionalized, with more architects traveling to Europe for training. The *American Architect and Building News* was first published in 1876 and provided a means for American architects to share ideas. Of course many structures were still being built by more vernacular builders or even by owners with the help of architectural pattern books. The houses and buildings they constructed ranged from interpretations of historical styles to more modern impulses.

What are referred to as the Victorian styles, Stick, Shingle, and especially Queen Anne, were characterized by a free use of a variety of different styles. A Queen Anne house might have contained colonial, Gothic and Italianate elements, creatively synthesized into an unique building type. "To be Gothic, to be classical, to be authentic at all was not the point. Rather, it was to create something comfortable and charming, using anything and everything that served the purpose" (Kidney 1974:6).

The Victorian styles remained popular from about 1860 until 1900, but around 1880, a more exacting type of revival architecture began gaining popularity. These so called "Eclectic" styles included revivals of Anglo-American, English, French and Mediterranean period houses. While a multiplicity of styles might be referenced, dwellings no

longer tended to combine styles. Rather, variety was manifested on a neighborhood level where a Tudor Revival might be built next to a Colonial Revival or a Pueblo Revival house. Beginning with large houses built by European trained architects for wealthy clients, Eclecticism gained momentum with the Columbian Exposition of 1893, and was soon being used in middle class houses (McAlester and McAlester 1984).

Yet another important architectural trend began around 1900 with the introduction of Prairie and Arts and Crafts styles. While philosophically based upon medieval architecture, these styles represented a more modern shift towards modestly sized, well designed homes built with natural materials (McAlester and McAlester 1984).

Strangely enough, all of these styles, with the possible exception of the Colonial Revival, proved to be compatible with stained glass. Beginning with the high style mansions built for the very wealthy, stained glass would be increasingly included in domestic architecture, until even very modest houses constructed by local builders or from pattern books featured stained glass.

One particular type of building that emerged during this time period was the "urban palace," enormous mansions which were home only to the very wealthy, but which clearly influenced the construction of more modest dwellings.

> Enormous wealth, the identification with the Renaissance, and the 'new art idea' combined to create a new type of American domestic structure at the end of the 1870s - the urban palace. These large mansions offered new opportunities for the architect, artist, decorator and patron to explore freely, without concern for cost, the new directions in art and design. (Pilgrim 1979:117)

These urban palaces were not only immensely grand in exterior appearance, they also contained the most sumptuous ornament available, including stained glass. The W.H. Vanderbilt mansion, commissioned in 1878, contained La Farge windows described by Edward Strahan, biographer of the palace, as

> ...unique in the house as a specimen of designing contributed from American soil, in the strict taste of the best Renaissance models, but springing from native industry instead of being a trophy gathered from some old centre of foreign art. In such examples does the house justify itself as a sort of educational force, a college for the development of the higher crafts. (in Pilgrim 1979:123)

The use of stained glass in fabulous palaces like the W.H. Vanderbilt mansion inspired more modest builders to use it as well.

The growing number of architectural pattern books published during the 1870s and 1880s helped to interest the public in architecture and home building. These books, usually written by an architect or designer, included house plans and descriptions of needed materials and costs. The plans primarily focused on modestly priced but stylish middle class homes, although sometimes plans for churches or outbuildings were also included. Books like *Bicknell's Victorian Buildings* published by A.J. Bicknell & Co. (1878) and *Palliser's Model Homes* by Palliser, Palliser & Co. (1878) include plans for a variety of Second Empire, Italianate and Queen Anne homes, reflecting the democratization of house styles that occurred with the rise of the American middle class. Many of these plans suggested the use of stained glass. A typical Palliser design for a large two and a half story Queen Anne/Eastlake house (Figure 1), which could be built for a cost of $2,500, includes the following window treatment:

> The upper sashes are filled with stained glass, all round the sash being very small lights of different colored glass, and the center light has the figure of a flower in white on blue ground. This manner of treating windows must be seen to be appreciated, and no blinds are used except on the lower sash, and when the blinds are closed it gives a mellow tone to the light of the interior. (Palliser, Palliser & Co. 1878:40)

Pattern book descriptions such as this reflect, and helped to inspire, the growing popularity of stained glass and its increased use in domestic structures during the 1870s and 1880s.

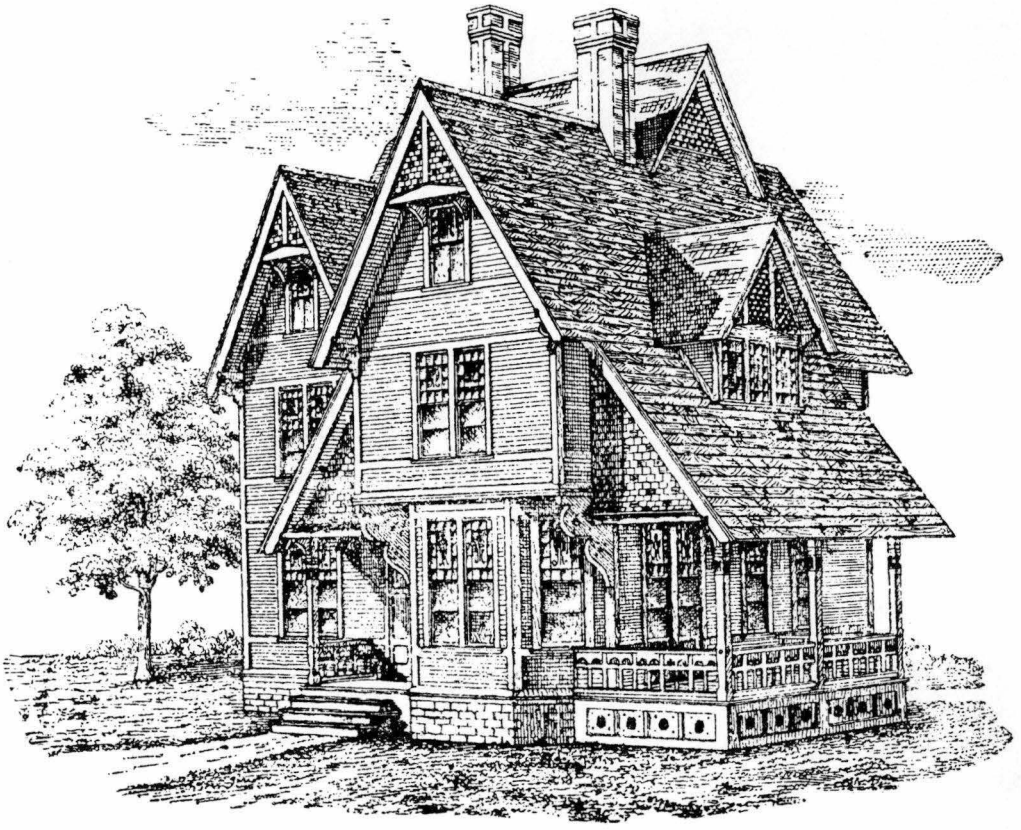


Figure 1. This model home, by Palliser, Palliser and Co. featured numerous colored glass windows including Queen Anne sash and etched flashed glass (Palliser, Palliser & Co. 1878:40).

Stained glass was also promoted by popular home decorating publications. In October of 1879, *Harpers New Monthly* magazine published a lengthy article advocating the use of stained glass in the home:

> Among these efforts for obtaining lasting rather than ephemeral embellishment, and for rendering "ornament conducive to instruction," it need occasion no surprise to learn that the ancient and long-approved method of decoration furnished by painted glass is again taking its proper rank. Certainly the translucence of glass enables the art collector, if he carefully and fittingly uses it, to surpass all the other decorations of his room in special attractiveness. The window being the opening to admit light, is always the first attraction to catch the eye. The deep warmth of the ruby, the tender contentment of the sapphire, the glow and coruscation of the amethyst, the brilliance and cheerfulness of the emerald, the glitter and

> distinctiveness of the diamond, may all be summoned to the satisfaction of the least cultivated eye by the infinite wealth of the glass stainers art. (in Lloyd 1962:56)

Articles like this one reflect the growing popularity of stained glass for domestic, rather than just church architecture. The domestic architecture of the period, with its rich surfaces, historical allusions and whimsical and romantic character was particularly suited to stained glass.

Commercial buildings also began to include stained glass. As H. Weber Wilson says, "it soon became apparent to both builders and merchants that the selective installation of mosaic or other decorative glass represented an excellent opportunity to advertise to a large audience in a very urbane manner" (1986:94). By 1900, almost any type of American building, built in any one of the multiple popular styles could, and often did, contain stained glass.

The Emergence of Opalescent Glass

The developments in stained glass that began in the 1870s have been viewed as one of the greatest American contributions to art (Pilgrim 1979:128). During this time period, materials, manufacturing techniques and methods of design were all revolutionized, leading to the creation of entirely new types of stained glass windows. The catalyst for this revolution was the invention of opalescent glass by John La Farge and Louis Comfort Tiffany. Thanks to these two men, stained glass not only underwent a dramatic change in style, but it also moved out of the realm of church art to become an extremely popular secular art form. As Julie Sloan says,

> During the late nineteenth century in America, the art of stained glass underwent the most sensational technical and aesthetic revolution it has ever experienced: the discovery of opalescent glass and its use through plating in stained glass windows. The change was so far reaching that it made one man's name a household word and allowed stained glass win-

> dows to become part of virtually every building constructed in the last twenty years of the nineteenth century. (1990:39)

Although opalescent glass was very rarely used by European artists, American studios rapidly took up this new invention. Beginning its reign in the early 1880s, opalescent glass would continue to rule the American stained glass scene for 30 to 40 years.

While Louis Comfort Tiffany is certainly the best known figure associated with opalescent glass, and probably with American stained glass is general, an artist named John La Farge also greatly contributed to the creation of opalescent glass. Like Tiffany, La Farge was a successful painter who later turned to stained glass work. The work of both artists has been termed American Impressionism, a school of painting which particularly focused on expressing light and color. In 1873, La Farge traveled to Europe and became interested in the stained glass being made by the Pre-Raphaelites in England. He felt that their designs had reached their creative limit, and he began to think of new methods for creating stained glass. By 1875, he was making his own windows and experimenting with different varieties of glass. The opalescent glass he created blended colored and milky white glass to create a translucent glass with many subtle color variations. Opalescent glass had been used previously in glass objects, but it had never before been used in stained glass. La Farge applied for a patent in 1879 for his new methods "to obtain opalescent and translucent effects in windows" (in Sturm 1982:38).

At the same time, Louis Comfort Tiffany was also working on creating new types of glass for stained glass windows. Tiffany began making glass tiles in the mid-1870s, using them for wall mosaics and decorative lamps. In 1876 he made his first stained glass windows for Sacred Heart Church in Manhattan, using large pieces of bull's-eye glass. A window he built in 1878 for the St. Mark's Church in Islip Long Island was the first to contain opalescent glass. Tiffany went on to form a large studio and produce thousands of stained glass windows. As the son of successful jeweler Charles Lewis

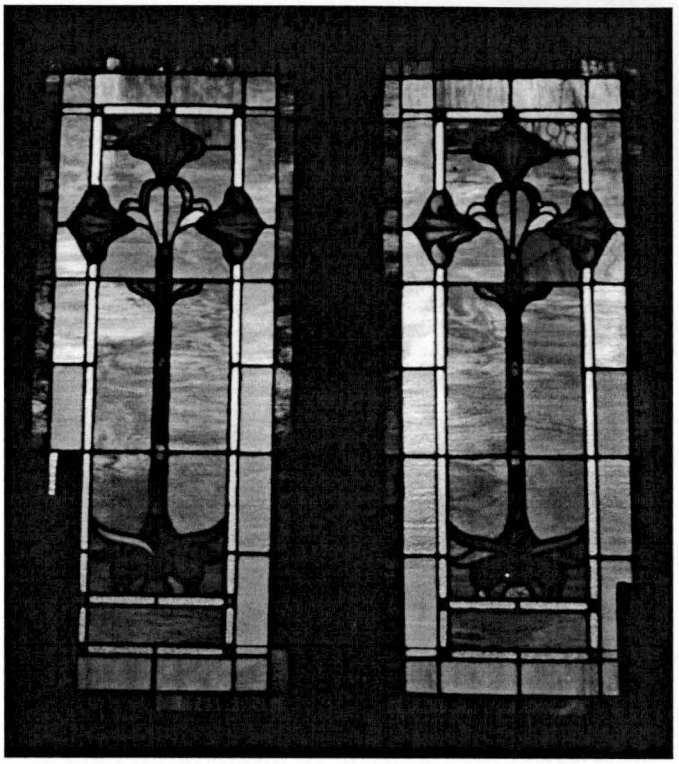


Figure 2. This window, designed by Povey Bros. for the United Presbyterian Church in Albany, Oregon, is made almost entirely of milky, opalescent glass.

Tiffany, L.C. Tiffany had large amounts of capital at his disposable, perhaps accounting for his commercial success over the less wealthy La Farge. Both because of his business acumen and the ingenuity of his designs, Tiffany "probably had more influence on art and stained glass in particular than anyone else during the late Victorian period" (Lloyd 1962:56).

The glass created by Tiffany and La Farge had unique characteristics which made it very different from traditional antique or pot metal glasses. Opalescent glass is semi-opaque rather than translucent and presents quite a different appearance in both reflected and refracted light. It also contains gradations of color which allowed for the elimination of paint from the design (Figure 2). Subtle changes of color within the glass itself were

used to create all sorts of impressions, and paint was generally used only for facial features and hands. Samuel Bing, champion of Art Nouveau, gave a beautiful description of Tiffany's opalescent glass in 1898:

> For years Tiffany gave himself up to these engrossing researches, and gradually succeeded in making a glass which answered the requirements to a wonderful degree. By the blending of colour he causes the sheet of glass to convey the effect of a cloudy sky, or of rippling water, or again the delicate shades of flowers and foliage, for drapery, in all its truth of suppleness and outline, he operates in a most ingenious manner upon the material while it is cooling, pulling into it an infinite variety of folds and wrinkles. (1898:210)

The folded glass to which Bing refers is called drapery glass, and it was another 19th century innovation in glass. This type of glass, usually made of opalescent glass, was bent and wrinkled to produce a highly textured glass that looked much like fabric. La Farge and Tiffany also created depth and color variation by adding multiple layers of glass to their compositions. Called "plating," this technique helped to create the unique look of opalescent windows.

Not only did Tiffany and La Farge revolutionize the materials and techniques used to make stained glass, but they also dramatically changed the subject matter and intent of stained glass windows. Stained glass had previously been almost entirely ecumenical, and with the exception of heraldic crests and simple geometric windows, almost no windows had been made for private residences, businesses or public buildings other than churches (Figure 3). However, "Tiffany and La Farge brought stained glass into the home, drawing on the subject matter favored by painters of the period. Landscapes, flowers, fruit, peacocks, nymphs and beautiful women were captured in glass to great effect" (Sloan 1990:41). Tiffany in particular is recognized as the inventor of the landscape window, windows which drew on the tradition of landscape painting and portrayed natural scenes and broad expanses. Landscapes had been entirely absent in stained glass

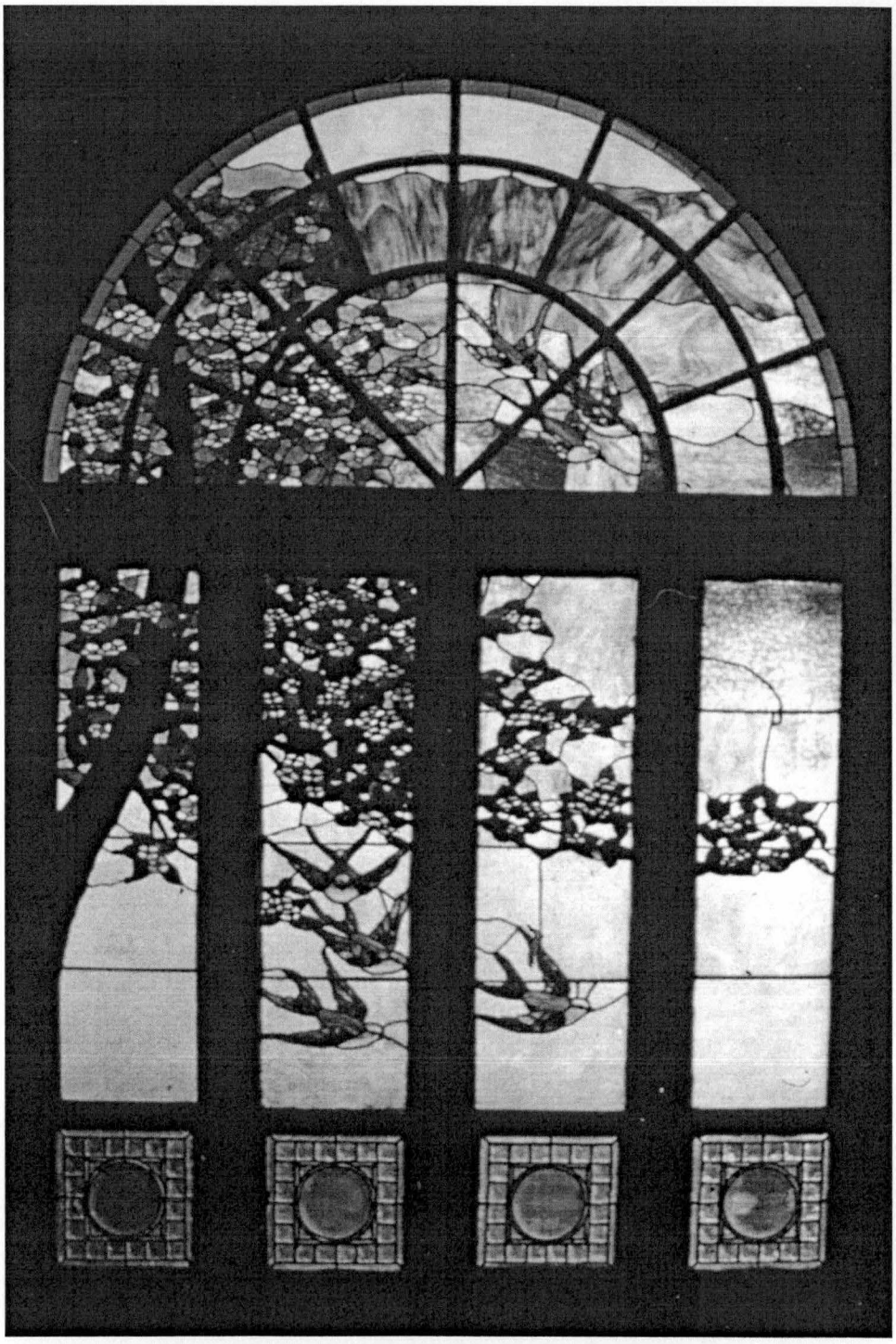


Figure 3. This window by Povey Bros. falls clearly in the landscape window tradition. The birds fly down from a flowering tree with hills and mountains in the background (Polly Povey Thompson Collection).

up to this point. Figures typically floated in space or were surrounded with stylized architectural ornament. The landscape window, which had little overt religious imagery, appealed to Protestant and Jewish congregations, and was also suitable for secular use. By expressing the beauty of nature, a popular theme in all late 19th century art, stained glass began to appeal to a much wider segment of society and to be used in many different types of buildings (Figure 4).

The trend begun by Tiffany and La Farge became immensely popular throughout the United States. Studios across the country began to produce opalescent windows, and many new studios opened as the demand for these windows soared. "Opalescent glass was so popular in this country that by the end of the century few domestic studios made windows of any other material" (Sturm 1982:59). Opalescent glass became popular during a time of national expansion and growth, and as a consequence it was included in vast numbers of buildings. "As neighborhoods and cities expanded, the quality and variety of decorative windows observable from the street became like a permanent,

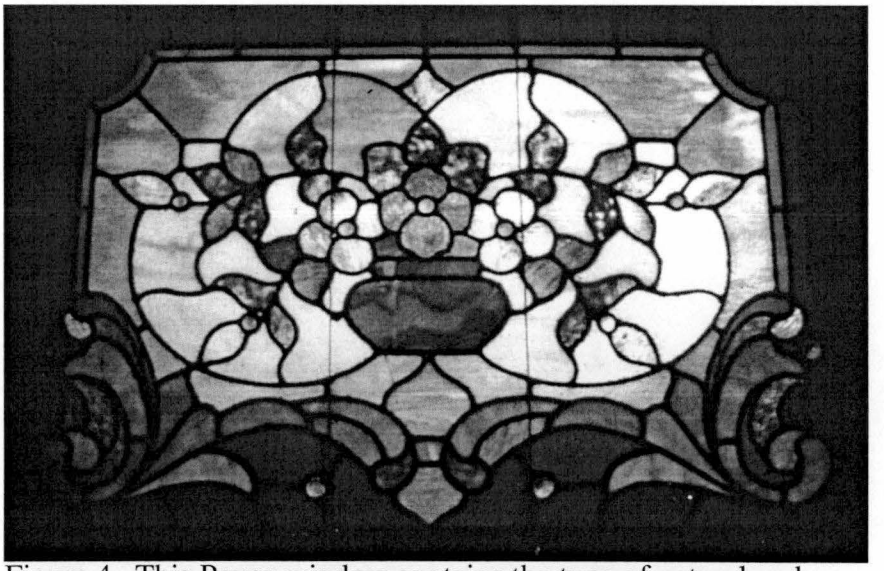


Figure 4. This Povey window contains the type of natural and stylized classical elements which were so popular in late19th century stained glass (Polly Povey Thompson Collection).

public pattern book" (Wilson 1986:10). The increased acceptance of stained glass as a secular art form, and the technical innovations of Tiffany and La Farge resulted in a booming American stained glass industry. Opalescent glass would remain en vogue well into the 1910s and even the 1920s, when the Great Depression and changing tastes would reverse the fortunes of American stained glass.

Stained Glass Styles in America 1880-1930

"Unquestionably, the late 1800s represent the Great American Stained Glass Revival, a period that was a wonder both for the creations that emerged and for the artistic barriers which were broken" (Wilson 1986:64). The invention of opalescent glass and revolutions in subject matter and design instituted an era of great creativity in stained glass. Glass artists worked with a wide variety of materials and in a wide variety of styles, in keeping with the range of eclectic architectural styles popular at the time.

Artists began creating opalescent windows in the spirit of Tiffany and La Farge, but they also used opalescent glass, often in combination with other types of glass, to create many different types of windows.

> Stained glass began to reflect the American preference for color and drama and became a major domestic art form. As there was no established church to insist on a canon of taste or subject matter, ecclesiastical windows followed domestic windows toward the emancipation from Gothic traditions. The new styles were more French than English, but eventually became a uniquely American contribution to glass. (Sturm 1982:34)

According to H. Weber Wilson, "the special qualities of American windows are the juxtaposition of glass color and texture, the imaginative use of a variety of cames, the inclusion of special decorative inserts, and the frequent adaptation of subtle or inventive fabrication techniques" (1986:65). Creative use of materials was the norm, with few other rules or standards to follow, and stained glass windows were built in Aesthetic,

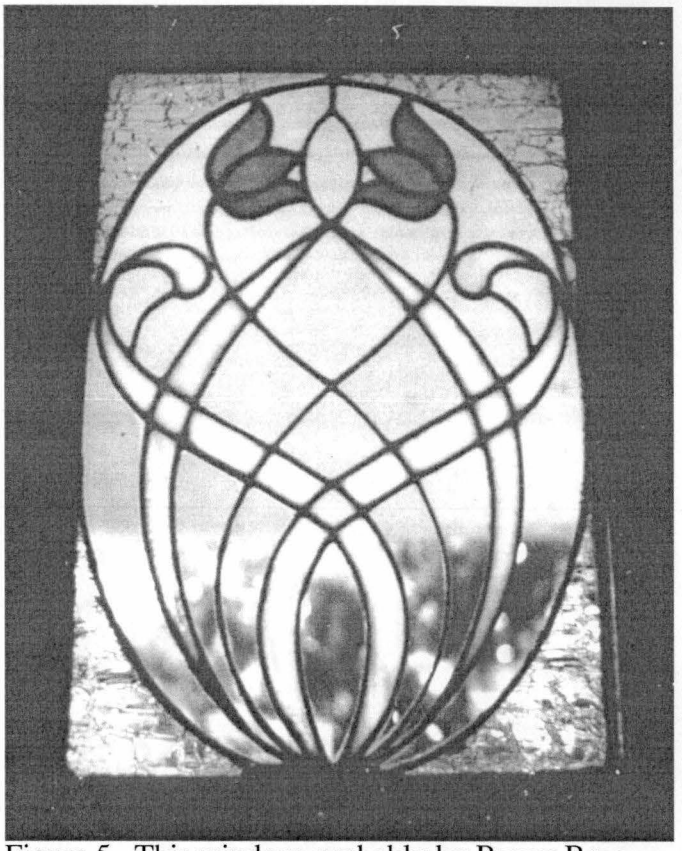


Figure 5. This window, probably by Povey Bros., contains strong Art Nouveau elements (Polly Povey Thompson Collection).

Renaissance, Art Nouveau, Arts and Crafts, Prairie and even Neo-classical styles (Figure 5). While stained glass had never previously been used in classically inspired buildings, the renewed popularity of classical styles brought about by the Columbian Exposition of 1893 did not slow the growth of stained glass. Architects had established relationships with stained glass makers, and the material remained consistently popular with the public, so stained glass was adapted and used in many Neo-classical buildings (Sturm 1982:49).

Industry Problems

Although the period from 1880 to 1930 was a very profitable and successful time for American stained glass, internally the industry was plagued by personnel problems

and issues of quality control. Events that took place in Chicago in the early 1900s probably mirrored nationwide labor relations. By 1900, employees of Chicago stained glass firms were working long hours with no job security. Older, higher-paid workers were frequently laid off in favor of cheaper, less experienced employees. In response to these conditions, the workers formed the Amalgamated Glass Workers Association in 1900. Studio owners countered in 1903 by forming the National Glass Manufacturers' Association, which later became the Stained Glass Association of America. The workers went on strike in 1905, and the dispute lasted into 1907 when a contract providing fixed hours and better employment stability was signed. However, tensions still existed between management and labor. The groups decided to initiate a publication to facilitate communication. This publication, originally called *The Ornamental Glass Bulletin*, did succeed in this purpose and is still being published today as *Stained Glass* (Frueh and Frueh 1998:52-53).

The National Glass Manufacturers' Association also attempted to deal with the issue of price-cutting, a problem which plagued the industry for many years. They standardized prices and created *The International Art Glass Catalogue*, which was published from 1909 to 1914 and mailed to architects, builders and millwork supply houses. These catalogues reflected the industry's attempts to mass market low priced stained glass and are generally filled with low quality, easily produced designs. Other catalogues were published by the Wholesale Sash, Door and Blind Manufacturers' Association and included sand blasted, beveled and stained glass. These catalogue windows are generally simple geometric designs in opalescent glass. The mass marketing of these low quality windows has at times been blamed for the decline in opalescent glass. As John Gilbert Lloyd says, "the trouble lay in the over preponderance of tawdry commercial stuff that poured out of shops with no thought given to artistic merit or feeling. Although commonly known as 'art glass' there was little art connected with it" (1962:59).

War Years And Depression

The years between the First and Second World Wars would see the end of the florescence of American stained glass art. In part this was caused by the economic hard times of the Great Depression and scarcities of the war years, but changing tastes also played a significant role. Stained glass studios began to disappear as demand for their services decreased. According to John Gilbert Lloyd (1961:106), there were 900 glass studios in operation in the United States in 1929, but within 30 years this number was reduced by 75%.

Both wars hurt the stained glass industry by decreasing the availability of necessary supplies like lead, although they did help to eliminate European competition. The Depression also had a crushing effect on stained glass. Many studios were not able to survive these years of economic want, and those that did were generally forced to expand their business into other, more basic areas of glazing. Public relief efforts did little to help stained glass workers until 1935 when the Works Progress Administration Federal Art Project funded several commissions (Lloyd 1962:107).

The impact of modernism began to be felt in the United States after World War II. This architectural style, in contrast to the richly decorative eclectic styles, stressed functionality and simplicity of form and abhorred historicism and abundant decoration. A revival of Colonial styles was also occurring at this time, and while this was clearly a historicist style, it referred to a period in which stained glass had not been used. With the growing popularity of these two architectural styles, stained glass use waned, particularly in non-church buildings. Churches remained as the traditional, and increasingly the only, provenance for stained glass. Church architecture has always been more conservative, trailing general architectural trends by at least a decade or two, and the Gothic style continued to be used for churches long after it lost favor for other types of buildings. The

stained glass that was used in these churches was also highly traditional. The trend in stained glass became a return to the Gothic, mosaic methods of stained glass. This trend began as early as 1900 with artists like Otto Heinigke, William Willet and especially Charles Connick turning out neo-Gothic pot metal glass windows, but it accelerated after opalescent glass fell out of favor. Charles Connick, a former newspaper cartoonist, was one of the chief advocates for the return to the Gothic style. His influential book, *Adventures in Light and Color*, was published in 1937; the pro-pot metal, anti-opalescent opinions it promulgated came to be shared by art historians, glass artists and the public, and the creations of the opalescent era were increasingly despised.

American Glass Industry Post World War II

The building boom that occurred after the war, as well as later movements for urban renewal, often resulted in the destruction of historic buildings. Opalescent stained glass was no longer valued; Tiffany lamps were sold at garage sales and church windows were melted down for the value of their lead. Not until the 1970s did a revival of interest in Victorian architecture and in stained glass occur, in large part due to the rise of the historic preservation movement. Since that time, historic stained glass has soared in popularity, and now many efforts are being made to preserve it.

The new stained glass that has been produced since World War II has been largely modern in influence. Innovative techniques like *dalle de ver* have allowed artists to create new sorts of designs. The trend has been toward abstraction and an emphasis on integrating stained glass and modern architecture. James Sturm described modern stained glass as "the disparate body of stained glass that rejects medieval and Renaissance models and reflects artistic and architectural trends of the last half century" (Sturm 1982:76).

CHAPTER III

THE POVEY BROS. GLASS CO. OF PORTLAND, OREGON

In 1888, two young brothers, John Edward Grant Povey, age 20, and David Lincoln Povey, age 22, arrived in Portland, Oregon. In that same year they founded Povey Bros. Glass Co., a stained glass studio that would grow to become one of the most prolific and successful in the Pacific Northwest. Povey Bros. Glass Co. remained in operation for over three decades and produced thousands of windows which can be found in buildings all across the Pacific Northwest. This chapter will give an overview of the Povey Bros. business within the context of the history of Portland as well as provide information about the Povey family.

The Povey's Portland

The city in which John and David Povey arrived had been founded just 43 years previously, in 1845, as a rough frontier outpost. However, in its first four decades, Portland grew tremendously quickly, and by the 1880s it had been transformed into a burgeoning metropolis. Many factors account for this transformation, including the city's favorable position for travel and trade on the Willamette River, the arrival of the railroads connecting Portland with the rest of the country and the growth of Oregon's logging and agricultural industries. Portland would continue to grow and flourish as it entered the 20th century. Its rapid growth and expanding economy made Portland an ideal city for founding any business, including a stained glass studio.

Founded by William Overton and F.W. Pettygrove in 1845, Portland was originally known as Stumptown because of the multitudes of freshly cut stumps that could be

seen everywhere in the town. It was incorporated in 1851, at which time about 800 people, 75% of whom were male, resided in the town (DeMarco 1990:38). By 1860, the population had risen to 2,800, and by 1864 it had doubled again (DeMarco 1990:43). Steamship travel to San Francisco and Sacramento became available in the 1860s, and in this same decade telegraph lines arrived in Portland, allowing for rapid communication with the rest of the country. By 1870, mail could be sent to and received from California within one week.

The period between 1880 and 1890 would continue to see fantastic growth as well as the expansion of transportation and communication networks. By 1880, 17,000 people lived in Portland and by 1890, 46,385 people (DeMarco 1990:58). According to Gordon DeMarco, a Portland historian, this rapid growth was accounted for by the steady expansion of local business and the creation of transportation networks that allowed Portland to grow and suburbanize. This contrasts with the type of growth seen in boom towns like Seattle and San Francisco, where the impact of the gold rush, a single event, was largely responsible for the enormous population growth. The arrival of the railroad in 1883 allowed Portland to develop an export economy for wheat produced in the Willamette Valley and lumber cut from nearby forests.

Examining economic activities in the period from 1885 to 1891 gives some idea of the types of businesses and industries that were beginning to flourish in Portland at the time the Poveys arrived. In this short time period, ten banks and two insurance companies were incorporated, the Port of Portland Commission was established, and two electrical utility and street paving concerns were organized. City services grew as well. The water system was expanded to serve more homes, and electric street lights were installed. Two bridges were built across the Willamette River, the Morrison Bridge in 1887 and the Steel Bridge in 1888. In 1889, the first electric trolley ran across the Steel Bridge to

Williams Avenue. By the mid 1890s, more than 100 miles of public transit lines had been laid throughout the city of Portland. The bridges and trolley lines created the opportunity for building east of the Willamette, and real estate speculators quickly divided and sold off lots and newly built homes (DeMarco 1990:67). East Portland, Sellwood and Albina were annexed into the city in 1891, expanding the city's area from 6.14 to 36.9 square miles (McFadden 1993:53-54). By 1915, half of Portland's population would live on the east side of the river.

From an early time, Portland was distinguished from other western cities by its reputation for wealth and culture. *West Side* magazine reported in 1888 "Portland leads all the cities of the coast in the number of elegant and costly dwellings as compared to her population" (in DeMarco 1990:66). One national study found that Portland ranked second behind Hartford, Connecticut as the richest city in America in proportion to population (DeMarco 1990:66). Many Portlanders came from the northeast United States and wanted to replicate the cultural institutions they had enjoyed in their home states. They were quick to found churches and schools as well as musical, literary and art societies. The Portland Art Association was created in 1892 and maintained a room in the city's public library until it erected a museum and art school in 1905 (Dodds 1986:155). Another important Portland cultural institution, the Oregon Historical Society, began publishing its quarterly journal in the 1890s. In 1889, the first annual rose show was held, establishing Portland as the City of Roses.

While today's Portland is generally viewed as having a fairly homogenous population, in 1890, 37.4% of the population was foreign-born, and 20% of this group was non-English speaking (DeMarco 1990:58). Many different ethnic groups made their way to the city including Chinese, Japanese, African Americans, Irish, Italians, Jews, Germans and Scandinavians. These ethnic groups sometimes formed their own neighborhoods

within Portland, complete with their own businesses and churches, and brought with them Judaism and Catholicism to a largely Protestant city.

In 1888, when David and John Povey arrived in Portland, virtually no one in the city was making stained glass, with the exception of one company which crafted simple Queen Anne sash and sandblasted panes. No one was beveling glass, using metal cames, or painting and firing glass. According to Polly Povey Thompson, daughter of David Povey, "nobody else had training, the equipment or the fine quality glass as Povey Brothers' did" (ca. 1980s). The American glass trade was becoming firmly established in the east at this time, but few glassmakers had yet to migrate to the newly prosperous cities of the west. With the skills they had gained working in eastern studios, the Poveys were able to quickly corner the Portland stained glass market. The combination of economic growth, expanding population and the desire to create buildings that exhibited culture and prestige all contributed to a need for the services that the Poveys were offering. As noted earlier, during this time period stained glass was associated with wealth and good taste. It would have been an important element in transforming the appearance of Portland from frontier town to cosmopolitan city.

Portland was firmly established as a regional center and shipping capitol by the early 20th century. Portlanders were proud of their city and celebrated its success with a boosterism typical of the time period. One manifestation of this pride was the Lewis and Clark World Exposition. Held in 1905, it was the first large commercial fair to be organized on the west coast. The Povey Bros. studio was one of many Portland businesses to have an exhibit at the Lewis and Clark Exposition. The fact that the fair was held in Portland highlighted Portland's place as "headquarters of an entire region" (Abbott 1981:39). Organized by Portland businessmen and politicians, the fair promoted Portland's commercial success and in particular emphasized its position as a gateway for

trade in Asia and all along the Pacific Rim. The fair brought more than a million visitors to Portland and infused approximately eight million dollars into the local economy (Abbott 1981:64). The Poveys were awarded a medal for the work they exhibited at the Lewis and Clark Exposition, and the fair no doubt brought them increased exposure throughout the region.

The fair also marked the beginning of another economic and building boom for Portland. New skyscrapers began to be built downtown, and residential neighborhoods expanded as well, particularly on the eastern side of the Willamette. Between 1900 and 1916, westside neighborhoods grew from 58,000 to 96,000 and eastside neighborhoods grew from 32,000 to 178,000. The city replaced the old Morrison, Hawthorn and Steel Bridges between 1905 and 1912 and opened the new Broadway Bridge in 1913 (Abbott 1981:72). Street car lines also continued to expand. The boom peaked around 1910, a year in which 30 churches were built, probably providing Povey Bros. with a great deal of business.

However, the economic boom had begun to fade by 1912 or 1913. The year 1914 would mark a period of unemployment in the Northwest, and a march of the unemployed from Portland to Eugene took place in January 1914. The depression created an interest in Progressive politics. David Povey was very involved in the Progressive Party, taking part in several party meetings in 1912. He also served as the Oregon Progressive delegate to the national convention held in Chicago in 1912 (John Gimbel to Mrs. Raymond Mooeks (sic), letter, 5 March 1952, Mooers family, Seattle Washington). The fortunes of the Povey business were largely based upon the Portland economy. When Povey Bros. finally failed in 1929, Portland was on the eve of the Great Depression.

The Povey Family

The three Povey brothers were trained in the art of stained glass by their father, Joseph Povey, an English immigrant. Joseph Povey was born in Kent, England in 1820 and worked as a stained glass maker as, according to family tradition, did his ancestors before him. He married Hannah Neale on December 25, 1848 at the Union Chapel in the District of West Bromwich, County of Stafford, England. At the time of their marriage, Joseph Povey's profession was listed as "glass flattener" and his father's (David Povey) profession as "holloware turner." Hannah Neale's father, George Neale, was listed on the marriage certificate as a "moulder." Both Hannah and Joseph were living in West Bromwich at the time that they wed. Immediately after the marriage, the young couple immigrated to the United States, living first in Philadelphia, then New York City, and later in Newark, New Jersey. The family was living in Philadelphia in 1850 when their son George was born and stayed there until at least 1863, but by 1865, the year David was born, had moved to Newark. The Poveys had three daughters (Eliza-Jane, Emma Harriet, Ida May) and three sons (George William, David Lincoln, John Edward Grant) who lived to adulthood.

It is not known precisely where Joseph Povey worked during his time in England, but he may have had his own studio or worked for a larger glassmaker. It is possible that he was affiliated with John Hardman and Co., one of the leading makers of Victorian stained glass. John Hardman and Co. was founded in 1838 in Birmingham, only a few miles from West Bromwich where Joseph Povey lived. The business was originally oriented towards the manufacture of ecclesiastic metalworking, but A.W.N. Pugin convinced Hardman to begin designing stained glass around 1845. A large collection of papers from the Hardman firm is located at the City of Birmingham Central Reference Library, so further research might confirm Joseph Povey's possible affiliation with this

firm (Harrison 1980:78). However, where ever he worked, he was no doubt involved with the Gothic Revival rebirth of stained glass that was blossoming during the 1830s and 1840s. Although Joseph Povey worked in England before the rediscovery of "antique glass," he most likely practiced the Gothic Revival style popularized by Pugin and Viollet-le-Duc.

Joseph Povey's occupation when he arrived in the United States is also unclear. According to one source, an 1889 publication entitled *Portland: Her Trade, Commerce, &Industries*, Joseph Povey "was the first manufacturer of Plate-glass in this country" (Thompson & Co. 1889:73). Although no other sources can be found to confirm this claim, it is possible that Joseph Povey helped to bring this technology to the United States. Plate glass was first made in England and France and was imported into the United States until American glassmakers began to experiment with the technology in the 1850s. Early plate glass manufacturers included the Cheshire Glass Company in Cheshire, Massachusetts and the Lenox Plate Glass Company in Berkshire County, Massachusetts (Konrad et al 1995:182). Joseph Povey cannot definitely be associated with any of these enterprises, but it seems clear from the Portland trade journal reference and his earlier listing as a "glass flattener" that he was somehow involved with the manufacture of plate glass, and he did arrive in the United States at the time this technology was first imported from Europe.

According to family tradition, all three Povey sons, David, John and George, were taught the art of stained glass by Joseph Povey. They supplemented this background with additional training and experience that allowed them to specialize in different areas of the craft. For instance, David Povey spent five years studying art and design at the Cooper Union Institute in New York City. He applied to the school in 1878 and graduated in 1884 with a degree in Cast Drawing and Perspective. According to Polly Povey Thomp-

son (ca. 1980s), her father, David Povey, was an excellent student who lost his chance to win a school medal only because he had to leave the university for a time in 1883 to attend the funerals of his father and an aunt. David would go on to become the main designer for Povey Bros., establishing himself as the creative leader. The oldest brother, George Povey, gained experience in the business end of operating a stained glass studio before joining his brothers in their stained glass venture as the financial manager. George Povey was a partner in Belcher and Povey, a stained glass studio in Newark, from 1875 to 1885. Shortly before George Povey left the firm, Henry F. Belcher filed a patent for a unique type of mosaic stained glass technology sometimes called mercury mosaic (Krueger 1994:20-30). Interestingly, although George Povey must have been aware of this process, Povey Bros. does not appear to have made any of these type of mosaic windows. John Povey, the youngest, specialized in glazing and iron work and worked in a number of studios before becoming the head of the Povey Bros. workshop. Both John and David worked in studios in Newark, Philadelphia, New York City and St. Louis before coming to Portland and opening their own business (Thompson ca. 1980s).

Several family members later came to Portland to join John and David Povey in this enterprise, including their older brother George (Figure 6). The three brothers would run the business together until George Povey died February 24, 1905, while serving in the Philippines as a member of the Oregon National Guard. George Povey was a second lieutenant with Company "L," Second Regiment of the Oregon U.S. Volunteer Infantry. He was recognized as a hero for taking critical supplies across a bay during an attack on Manilla. Povey was lauded for this achievement by being appointed the Army representative at the flag raising over the Capitol at Manilla and by being promoted to captain. After this promotion, Povey stayed in the Philippines, and died there of an unknown disease. His wife and son kept his stock in Povey Bros. until David and John purchased it from them.

A second generation of Poveys also became involved in the business as the brothers had children of their own. George's one son, John Harold Povey, did work at the studio, as did all of David's six children. John's only daughter, Dorothy Povey, may have worked at the studio as well, but her place of employment is not recorded in city directories from the time. John Povey passed away in 1917, and David Povey took control of the business until his own death. David's widow and children were largely responsible for running the business after he died in 1924, continuing the Povey tradition for a few more years.

Figure 6. Portrait of George Povey (Oregon Historical Society #0303P062

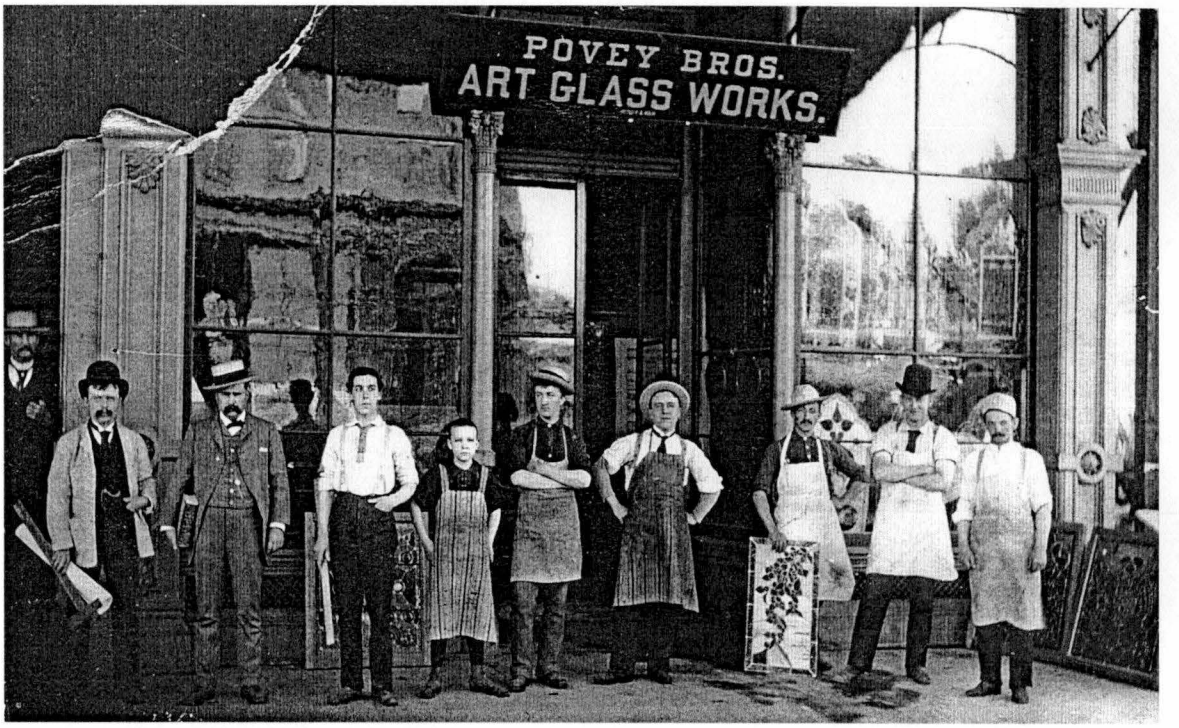


Figure 7. The first Povey studio at the corner of 2nd and Ash in downtown Portland (Polly Povey Thompson Collection).

The Poveys Establish Themselves in Portland

In June 1888, John and David Povey opened their first studio in a building at the southeast corner of Second and Ash Streets (Figure 7). This building, known as the Phoenix building, was built in 1879 and was owned by Dr. Rodney Glisan. In 1889 or 1890, they were joined by their brother George, as well as their mother, Hannah Neale Povey, and two sisters, Emma and Ida Povey. George William Povey, who came to Portland with his wife, Thirza Page Povey and son, John Harold Povey, became a partner in the business. The two Povey sisters worked in the studio as well. Emma, who was 26 years old when she arrived, worked as a bookkeeper, stenographer and an assistant artist. Ida, age 19, also worked as a bookkeeper. This family enterprise met with immediate

success and went on to become one of the premier stained glass studios in the Pacific Northwest.

According to Polly Povey Thompson (ca. 1980s), one of the Povey brothers may have come out to Portland in 1887 to make business contacts and possibly recruit contracts. Mrs. Thompson found a note in the records of the Westminster Presbyterian Church in Albany, Oregon written by Ruth Trimble, an old family friend who knew the Povey brothers well. This note reported that "the Povey Brothers came to Portland, Oregon to make the windows of the White Temple (the First Baptist Church) and the First Presbyterian Church of Portland" (Thompson ca. 1980s). This idea is supported by a passage in *Portland: Her Trade, Commerce & Industries* which reads, "Messrs. Povey Bros. were one of twenty-seven competing firms for the stained glass work of the Presbyterian church of this city. The competitors represented almost every firm in the United States, and after a rigid examination of the artistic merit of the work, the contract was awarded to this firm" (Thompson & Co. 1889:73).

The Poveys may have also been drawn to Portland because of the presence of Richard Martin, a local architect who was a close friend of David Povey's and later served as best man at his wedding. Martin and his partner McCaw were the architects for the First Presbyterian Church, working with the Poveys who did the stained glass for the church. These architects were noted for their many fine Richardsonian Romanesque designs. Richard Martin, the younger partner, went on to design many buildings in the Renaissance Revival style, including the 1907 Pythian Building (previously the Masonic Temple). An association with Martin no doubt greatly aided the Poveys to establish themselves in Portland.

The Poveys brought the goods and supplies they would need to set up their studio with them when they traveled west. They brought glass in many colors and textured

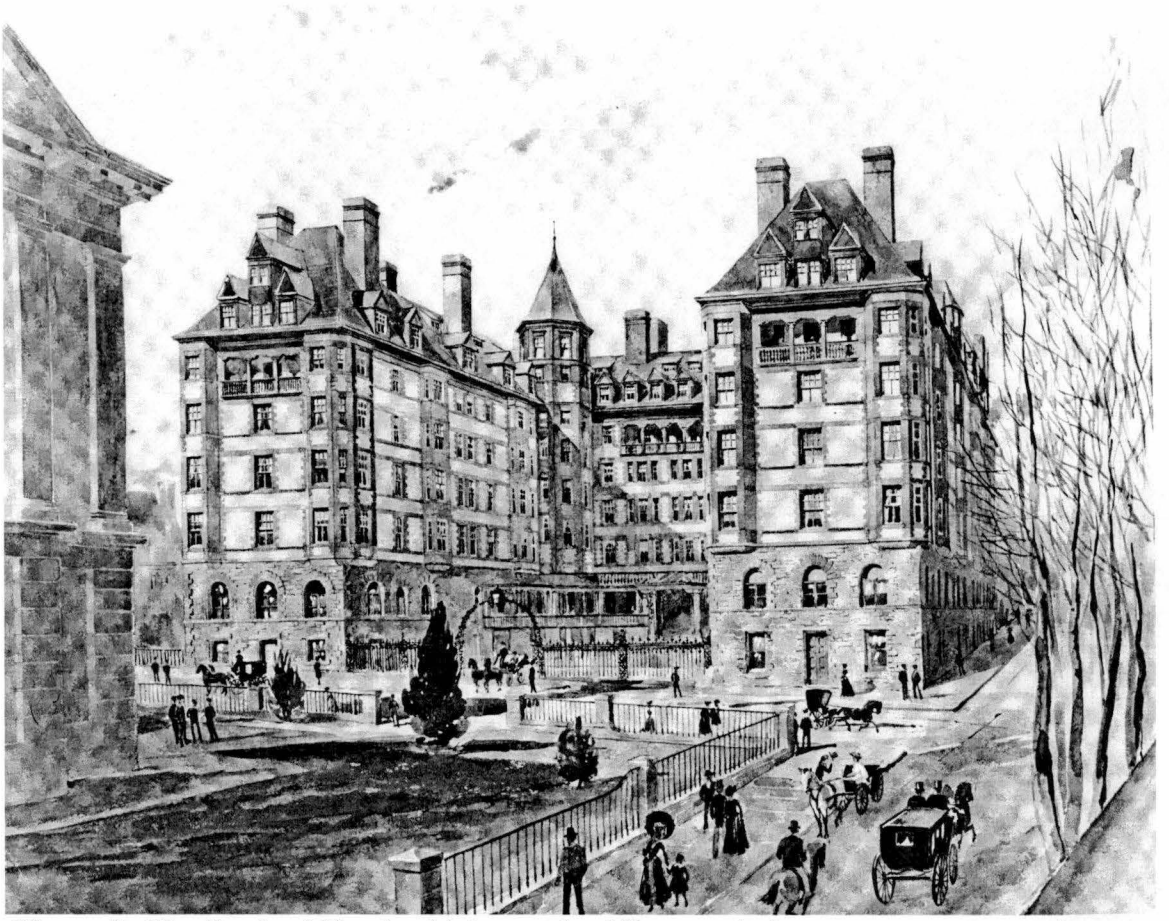


Figure 8. The Portland Hotel, which contained Povey windows, was a very prominent landmark in downtown Portland (Bosker and Lencek 1985:22).

finishes, cames and glazing supplies. In addition, they induced some stained glass workers who they knew from eastern studios to join them in relocating to Portland. It was a time in which many people were anxious to make their fortune in the west, and the Poveys must have made a good case for the opportunity presented by the prospect of founding a studio in Portland. Other employees must have been trained on the job.

The Poveys were fortunate to be hired for some very important early commissions. In addition to the First Presbyterian Church and the First Baptist Church, the Poveys designed the windows for the Portland Hotel, completed in 1890 (Figure 8). All of these buildings were extremely prominent landmarks in downtown Portland and

helped to publicize the Poveys' stained glass work. Not only would Portlanders have been aware of their work, but travelers passing through downtown and staying in the Portland Hotel would also have recognized its quality. Apparently, the Poveys quickly expanded their business as they made many windows for Craigdarroch Castle in Victoria, British Columbia, built in 1890. Although the windows may not have been installed in the same year that the mansion was completed, their Victorian style suggests they were most likely installed sometime in the early 1890s, suggesting that the Poveys were marketing their wares throughout the Northwest from an early date.

Advertising

By 1889, the Poveys had begun an advertising campaign to publicize their abilities (Figure 9). They purchased ads in *The Catholic Sentinel*, the weekly newspaper of the Oregon archdiocese, the *Polk City Directories*, and the *Oregon-Washington-Idaho Gazetteer*. Their first ad in the *Polk Directory* offered "Art Leaded Glass, For Churches, Dwellings and Public Buildings, Designs on Application" (*Polk City Directory* 1889:914). Later ads were longer and more elaborate. An 1891 ad read "Povey Bros., Manufacturers of Art Stained Glass in Leaded and Mosaic Effects for Churches, Dwellings and Public Buildings, Art Glass, Leaded Glass, Church Glass, Ondoyant Glass, Cathedral Glass, Colored Glass, Crystalline Glass, French Looking Glass, Ground Glass, Bevel Plate Glass, Plate Glass, Window Glass" (*Polk City Directory* 1891:905). In 1892 they added "Bent and Beveled Glass" to their list of offerings (*Polk City Directory* 1892:1069). According to Polly Povey Thompson, the brothers wanted large contracts, and advertising probably helped them to get significant jobs. However, they also did less expensive work like Queen Anne sash and sandblasted designs, maximizing their market share.

Interestingly, the brothers seemed to have primarily purchased ads in the early years of their business, at least in the *Polk City Directories*. After the early 1890s, there are almost no ads until the 1920s, suggesting that the business was securely enough established that advertising was unnecessary. Ads reappear in 1921 reading "'If You Are Building You Need Us.' Povey Bros. Glass Co., Established 1888, Manufacturers of Art Stained Glass for Churches and Dwellings" (*Polk City Directory* 1921:1489). The increase in advertising during the 1920s may reflect a decrease in demand or perhaps an increase in competition as other studios opened.

Figure 9. An early ad for Povey Bros. featured this angel design (Thompson & Co. 1889:73).

Community Ties

Another way the brothers publicized their works was through the community ties they quickly developed. David Povey was a member of the Masonic order for many years, eventually achieving the highest rank available (Kermit Thompson, personal communication 1999). He was also a member of the Odd Fellows, the Elks and the Shriners. John Povey was a member of the Volunteer Fire Department, and was known for riding through Portland's streets on his high wheel bicycle. He also was a member of the Knights of Pythias, the Elks and was affiliated with the Woodsmen of the World (*The Oregonian* 19 February 1917). As mentioned earlier, George Povey was a member of the Oregon National Guard, and was honorably recognized for serving in the Philippine Islands. Involvement in these organizations probably allowed the Poveys to get to know many of the influential people in Portland, making personal connections that could later lead to business opportunities. As stated in John Povey's obituary, "as a business man he possessed a wide circle of firm friends, and was ever foremost in seeking the advancement of Portland and the Pacific Coast country" (*The Oregonian* 19 February 1917).

Another personal connection was probably in part responsible for the success of Povey Bros. On October 25, 1892, David Povey married Hannah Maria Hobkirk, daughter of Peter Hobkirk, a Portland contractor and politician. Peter Hobkirk's contracting firm, Hobkirk and McKenzie, built the Portland Hotel, the First Congregational Church, and many other prominent Portland buildings containing Povey glass. Hobkirk, a Scottish immigrant, was also a member of the Portland City Council and served in the Oregon House of Representatives from 1898 to 1900. Like David Povey, he was a high ranking Mason and belonged to other community organizations. The Poveys brothers and Peter Hobkirk worked together on many buildings, including the First Congregational Church, and numerous residential designs.

Figure 10. The John Povey House in Irvington.

The Poveys also must have made connections in the neighborhoods in which they lived. For example, in 1891, John E.G. Povey married Oscara B. Hahne of The Dalles, Oregon and had a home built at 1312 NE Tillamook Street (now 564 NE Tillamook; Figure 10). Peter Hobkirk served as the contractor for this two story Queen Anne/ Eastlake dwelling, one of the first built in Portland's Irvington neighborhood. The house included many beautiful stained glass windows which were no doubt much admired by neighbors. It is now listed as a Portland Historic Conservation Landmark as well as on the National Register of Historic Places for its association with Povey Bros. and for its

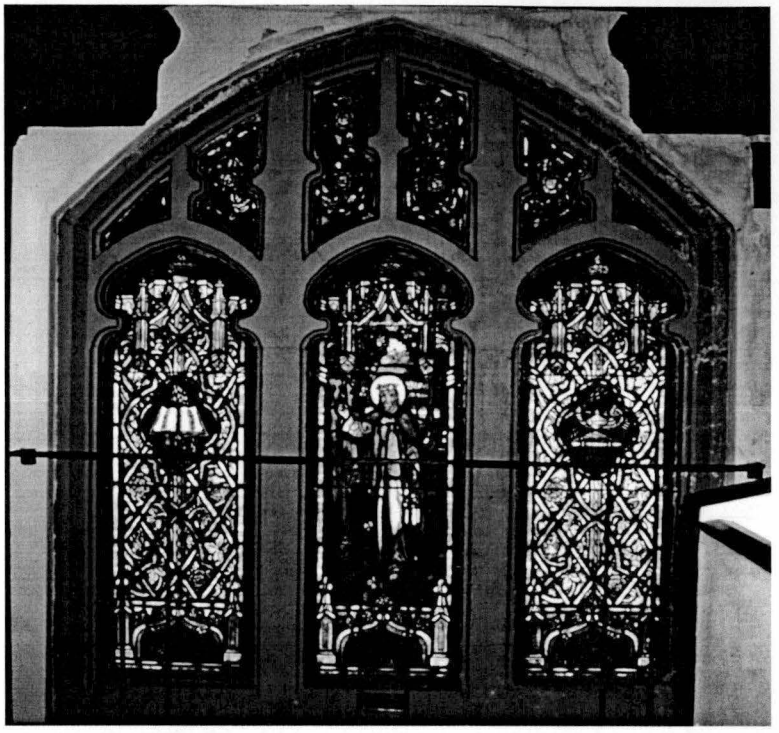


Figure 11. The David Povey Memorial Window at the Rose City Park Methodist Church.

architectural value. Povey windows can still be found in many homes in the Irvington district.

Spirituality

In addition to being involved in their communities and neighborhoods, the Poveys were members of the Rose City Park Methodist Church. They made many windows for this church, located in northeast Portland, including a memorial window for David Povey after his death (Figure 11). It seems logical that spirituality may have played a role in the Poveys' design work for churches, many of which draw on biblical themes. However, outside of the fact that the Poveys attended the Methodist church, little is known about their personal religious beliefs. All three brothers died at a fairly young age, and only one

of the Povey grandchildren can remember her grandfather (Betty Lou Kurtz Stevenson, personal communication 1999). It is clear that they were students of religion, as evidenced by the many books on religion, Bibles and books of saints they kept in their studio.

Company History

When it was founded in June, 1888 at the corner of Second and Ash, Povey Bros. Art Glass Works, as it was known at that time, had nine employees, including David and John. Only two of the other seven early employees are known: Cornelius Tonseth who later founded Tonseth Florist and Emil Lucke who eventually established his own glass company. David and John, and later George, shared the responsibilities for meeting with building committees and architects. They traveled a good deal, often by train or boat, to meet with prospective employers and promote their services. Each brother also played a particular role within the company. David, with his background in art and drawing, became head of the design studio. John, who was very knowledgeable in metalworking and other aspects of the stained glass craft, assumed responsibility for the fabrication workshop. George, when he arrived in ca. 1889, managed the accounts and supplies and worked to expand advertising.

In ca. 1890, the Povey operation moved to an adjacent building at 44 Second Street (Figure 12). This building was also owned by Dr. Rodney Glisan and was known as the 1889 Building, for the year in which it was erected. By this time they had approximately 14 employees. In 1892, they moved their business once again, this time to the southeast corner of Sixth and Davis and increased their work force to 20 to 25 employees. By 1894, the name of the business was changed to Povey Bros. Glass Co., the name by which it would be known for more than three decades.

In 1893, Povey Bros. became incorporated. David Povey served as President, John Povey as Vice-President and George Povey as Secretary-Manager. A man named George P. Gray was listed as treasurer. Gray is listed in 1888 and 1889 directories as a farmer, but in 1890 his occupation changes to real estate. Little else is known about Gray. He may have been primarily an investor. The men kept these positions until 1899. At that time, John Povey became President of the company, David Povey Secretary-Manager, and Hannah Hobkirk Povey, David's wife, the Treasurer. Hannah Povey apparently became involved in the business because George Povey left Portland in May, 1898 to fight in the Spanish American War. This arrangement continued from 1900 to

Figure 12. The second Povey studio was located at 44 2nd Street. This circa 1890 photograph shows that the staff was already expanding (Polly Povey Thompson Collection).

1917. During these years, Povey Bros. would continue to grow and to prosper, as did the city of Portland and the Northwest region in general.

By 1905, the Povey business had expanded to the extent that they needed yet a larger space. They had a new building constructed at the northeast corner of Fifth and Flanders Streets. This building was designed by Portland architect Emil Schacht and was ideally suited to their business; it will be discussed in more detail in Chapter V. At this time, Povey Bros. had at least 25 employees, three of whom were women (Thompson ca. 1980s). John and David Povey took complete control of the business due to George Povey's death.

David Povey left Portland for a time during 1908 and 1909 to travel in Europe and study the stained glass there. According to the family, he had originally planned to go to the Holy Lands, but this trip was canceled due to an epidemic of bubonic plague. He went to Europe instead, traveling in England, Scotland, Belgium and France. After David's return his first hand knowledge of the ancient stained glass of Europe became an important selling point with church building committees.

More family deaths occurred in the 1910s. Emma Povey, who had remained unmarried and continued working at the studio, died May 3, 1912 and was buried at the Riverview Cemetery in Portland. John Povey became ill around 1913 or 1914, and David assumed most of the responsibilities of the business at this time. John died at his home on February 18, 1917, and his ashes were interred at the Portland Crematorium. David and John had previously bought George Povey's stock from his widow, and in 1917, David became sole owner of the company by buying John's stock from Oscara and Dorothy Povey. According to Polly Povey Thompson (ca. 1980s), he mortgaged Povey Bros. and his own home to do so.

The onset of World War I in 1914 had several impacts on the business. War in Europe restricted the supply of glass and glazing products which the Poveys had gener-

ally imported. When the United States entered the war, additional restrictions on lead and other materials made supplies even more difficult to obtain. In addition, personnel were drawn away from the business. However, the end of the war brought about a demand for memorial windows for the many servicemen killed in action. David Povey designed one window for Walden Hall at Willamette University in memory of his son-in-law, Robert Sherwood, an Army doctor who was killed in France (Jacqui Lung, personal communication 1999).

David Povey continued to manage the business and do all the designing until ca. 1920. Around that time, he hired Professor Alfred Schroff, an art instructor from the University of Oregon School Architecture and Allied Arts, to do some designs for the studio. The Probate Records listing designs made in the Povey studio include at least 17 drawings by Schroff, including five saints for an unidentified church in Sellwood, three windows for a church in Pendleton and several for the Church of the Assumption in Bellingham, Washington. David Povey's daughter, Dymon Povey Mooers, who had worked in the studio since she was a little girl, assisted with design work, and also did some cartoons for the Church of the Assumption in Bellingham. She is reported to have helped her father complete the windows for the First Christian Church of Portland in 1923. Dymon Mooers had studied art at the University of Oregon under Schroff and may have made the connection between the Poveys and Schroff. She was a successful artist herself, and according to Polly Povey Thompson, David Povey often referred to Dymon as his "right hand man" (ca. 1980s). The Probate Records also refer to several other artists who did some designing for the studio during the 1920s, including William Pearson, and three individuals known as Runquist, Beezy and Hossick. No other mention of Beezy or Hossick can be found, but city directories do list Arthur Runquist as an artist with an advertising agency called Hall & Emory. A young woman named Mabel Johnson

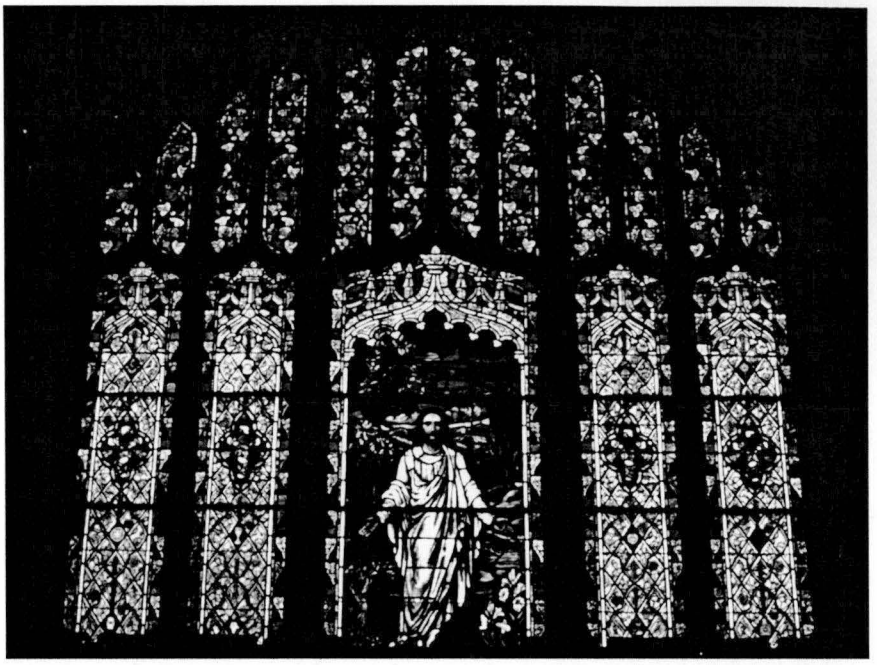


Figure 13. The Honor Rose window at the Rose City Park Methodist Church was designed by Mabel Johnson, a young woman artist at Povey Bros.

also began working at Povey Bros. as an artist and designer around 1923 or 1924 (Figure 13). Like Dymon Povey, she had studied at the University of Oregon School Architecture and Allied Arts. Mabel Johnson is credited with designing the large Honor Rose Window at Rose City Park Methodist Church in Portland (The Honor Rose Window *Stained Glass* 1925:11-12). She was briefly married to David H. Povey, one of David L. Povey's sons, and worked at the studio for a number of years.

The Competition

While Povey Bros. was clearly Portland's longest lasting and most successful stained glass studio, a number of other stained glass artists were working in the city during the heyday of American stained glass. Several of these competing studios were founded by men who had once been employed by the Poveys, indicating that the Povey influence extended beyond the body of their own work.

When the Poveys first arrived in 1888, a man named Adelbert Matteson was operating a studio called Portland Art Decorative Works. He had started this business around 1887 and advertised "Numbers and Names cut on Transoms, Glass Advertising Signs a Specialty, Doors, Panels, Transoms, Etc., Cut by Sand Blast Process, Grinding, All Kinds of Builder's Glass" (*Polk City Directory* 1888:24). From this ad, it appears that Matteson was not doing the kind of leaded mosaic stained glass work in which the Poveys were trained, but rather specializing in simpler sand blasted designs. The Portland Art Decorative Works remained in operation until ca. 1894-95.

After Matteson closed his shop, the Poveys were the sole manufacturers of stained glass in Portland for a time. Then, around 1901, Frederick H. Wagner opened his Mirror and Ornamental Glass Works, which remained in operation until 1910. Little is known about his background. He was listed in an 1899 directory as a glazier, but does not appear in earlier listings. In 1903, another studio opened, the Portland Art Glass Works. This company was founded by former Povey Bros. employee, Emil Lucke, and remained in operation for 26 years. According to Polly Povey Thompson (ca. 1980s), Lucke's enterprise was encouraged by the brothers who felt there was plenty of room for good artists in the Portland stained glass market. Lucke's listing in the *Polk Directories* advertised "Ornamental Glass of All Descriptions," suggesting that, like the Poveys, he was able to design and produce a wide variety of windows (1914:1156).

Another studio opened its doors in 1907-1908. This was the Pacific Art Glass Works, operated by Herbert C. Mattison. It is not clear if H.C. Mattison was related to Adelburt Matteson of the earlier Portland Art Decorative Works, but it seems likely despite the slightly different spellings of their names. Mattison's company advertised "Bevel plate, Mirrors and Window Glass, Designing and Making of Art Glass for the Decoration of Public and Private Buildings, Also Church, Society and Memorial Win-

dows, Metal Sash, Glass Signs, Screens, Art Domes, Shades, Etc." (*Polk City Directory* 1909:1584). The Pacific Art Glass Works remained in operation until 1915. Another company had a similar life span. Edward Bruns Co., operated by Edward Bruns, opened in 1909 and remained in business until 1916. Bruns, who specialized in art glass, appears to have moved to Portland to open his studio, as he is not listed in Portland directories earlier than 1909.

Two short lived companies existed in Portland around 1910. The first, with the inventive name of the Venetian Scenic Glass Co., was started by Arthur Duchamp and survived for only one year, 1909. The second, Witt Art Glass Manufacturing Co., was founded by two roommates, Joseph Link and Herman Witt. Link had previously been a glazier at W.P. Fuller & Co., while Witt was a clerk at Ashley & Ramekin. Like the Venetian Scenic Glass Co., the Witt Art Glass Manufacturing Co. managed to stay in business for just one year. Interestingly, John Harold Povey, son of George Povey, opened his own art glass concern in 1915. It appears to have remained open into 1916. J. Harold Povey later went to work for the Heacock Sash and Door Company and may have been involved with their stained glass line.

Several more successful stained glass studios appeared in Portland in the 1920s. The Heacock Sash and Door Co., which had been in existence for sometime, began to be listed under Art Glass in 1921. Their ad featured "Windows, Doors, Mill Work, All Kinds Made in Our Own Mill, Builders' Hardware, Paint, Roofing, Wall Board," and it seems likely that art glass was only a small segment of their product line (*Polk City Directory* 1921:1575). In 1925, a man named Frank J. Orloff opened his own art glass studio. Directory records show that in 1924, Orloff was employed as a cutter at Povey Bros. Glass Co. In 1923 he is listed as a carpenter, so it is likely that he received all his stained glass training at Povey Bros. Another studio operated by a former Povey em-

ployee opened in 1926. William Pearson had been an artist at Povey Bros. before founding the Pearson Art Glass Co. His studio was quite successful and remained in business until ca. 1944. One other studio opened in the 1920s, Kraemer's Art Glass Co., run by Anton Kraemer. Kraemer had worked as an independent glazier, a foreman at W.P. Fuller Co. and a glazier at the Portland Art Glass Co. run by Emil Lucke. Because he was probably trained by Lucke, he can be seen as a third generation descendent of the Povey legacy.

Other companies existed which probably overlapped services with the Povey Bros. The Oregon Mirror and Beveling Works, founded in 1918, offered "Plain and Beveled Mirrors, Polished Edged Plate Glass, Sand Blasting and Chipping, Mirrors Resilvered, Plate Glass for Windshields" (*Polk City Directory* 1918:1502). This business may in fact have been associated with the Poveys, as it moved to 105-107 N. 5th in around 1926, just across the street from the Poveys' factory at 100 N. 5th. While some other companies may have offered mirrors, beveled glass or mail order art glass, the preceding discussion includes all the Portland businesses which specialized in producing art and stained glass. It is clear from this discussion that the Poveys not only possessed the longest lasting concern, 41 years compared to the next closest competitor's (Portland Art Glass Works) 26 years, but they were extremely influential in the overall scheme of Portland's art glass industry. Both the second and third longest lasting studios were founded by former Povey Bros. employees (Emil Lucke and William Pearson), as were other smaller studios. It seems clear that the Povey brothers were the most influential force in Portland stained glass from the 1890s to the 1930s and 40s, when their own business was no longer operating.

The Final Years

Unfortunately, by the early 1920s, the popularity of stained glass had begun to wane. While stained glass probably remained popular in the western United States a few years longer than it did in the east, due to the lag time in the migration of architectural styles, the rise of modernism and the return to classicism were being felt in the Pacific Northwest by 1920. Although 1920 marked a return to building boom, with 25,000 new homes being built, these homes were much less likely to contain stained glass than those built during earlier boom periods (DeMarco 1990:116). Business records for the Povey Bros. studio are no longer in existence, but it seems likely that their business began to decline somewhat during this time. However, many people still enjoyed stained glass and it remained popular for churches, and Povey Bros. might have enjoyed several more years of success if it were not for the death of the remaining brother, David L. Povey. David died March 3, 1924 at age 58 and was interred at the Portland Crematorium, the windows of which he had designed just a year before.

After David Povey's death, the Portland Probate Courts required an inventory to be made of all his possessions. Three assessors were named to list and value all the assets of the Povey studio. One of these assessors was Emil Lucke, who had previously worked for Povey Bros. and gone on to run his own stained glass studio, so it can be assumed that the inventory was made by people with a good knowledge of the craft. The inventory includes all of the tools, materials and designs owned by Povey Bros. The assessors valued the stained glass studio, David and Hannah Povey's home and his Ford automobile at $66,101.75. Later it was discovered that $19,000 in Povey Bros. accounts receivable had been omitted, bringing the value of the estate to $85,101.75. This inventory provides much of the data used for analysis in Chapters IV and V.

During the time in which David Povey became ill and after his death, his six

children, who were by this time young adults, became increasingly responsible for running the family business (Figure 14). The oldest daughter, Vida, painted and worked in the office. She is listed as a bookkeeper for Povey Bros. in a 1916 directory. She may have continued to work in the office during World War I, as her husband, Robert Sherwood, was serving in France. Vida later became a doctor and cancer researcher. The second daughter, Elizabeth (Bessie) shared her father's artistic talents and did some work in the studio as an artist. She married an engineer, Jack Kurtz, in 1917 and moved away from Portland. The third daughter, Ellice Dymon, as mentioned earlier was a designer and painter for the company. During her father's illness and after his death, Dymon commuted by steamboat from Skamokawa, Washington to assist with the studio. The twins, Darrell and David H., first worked as shipworkers around 1918. By 1921, Darrell, now married, was working at Povey Bros. as a salesman. By 1924, after David Povey's death, Darrell Povey was listed as the manager of Povey Bros. David H. Povey was also listed with the company as a salesman. His wife, Mabel Johnson Povey, was recorded as an artist. Darrell's wife, Hazel Povey, was also listed as an artist in 1926. By 1927, David H. was listed as department manager, while Darrell remained general manager. They stayed with the company until 1928. Both went on to have careers in fields quite different from stained glass. David became an engineer and worked for the U.S. Army Corps of Engineers and in construction. Darrell became a ship captain and later vice president of shipping for Union Oil Co. The youngest daughter, Lillian (Polly) worked in the studio during summers and for a year before she left to study architecture at the University of Oregon. She and her husband, Raymond K. Thompson, practiced architecture in Portland for many years. She was greatly interested in the family history and gathered many papers and notes which have been most helpful in formulating this thesis.

After David's death, his children and widow faced a difficult task in keeping the studio running. Hannah Povey was named executrix of his estate and together with her

Figure 14. David and Hannah Povey with their children: Vida, Bessie, Dymon, the twins, David and Darrell, and baby Polly (courtesy Dr. David Mooers).

children she attempted to keep the business going. Long time employees like Dick Kern and William Schlegel stayed with the studio, but some others, like William Pearson, moved on. Some new artists, including Wilhelmina Becksted and Gretchen Cormony, were hired. In April of 1925, an artist named Albert A. Gerlach, was brought from Chicago by Povey Bros. and began working in the studio. He had apprenticed and worked for the Leyendecker studio in Chicago as an artist and studied at the Chicago Art Institute. Gerlach managed the art department until he left Povey Bros. in the spring of 1928. At this time Willard Tobey became the manager and a Mr. Dunham from San Francisco was hired to work as a glass artist.

In September 1924, Hannah Povey was forced to borrow $25,000 to pay off two existing mortgages on the Povey Bros. property. The value of the estate at $85,101.75 did not include debts amounting to $74,885.90, including the mortgages and unpaid taxes. In September 1928, the Fidelity Mortgage Company foreclosed a lien for unpaid taxes on the Povey Bros. property at 100 N. 5th, forcing its sale. W.C. Becktell of Portland agreed to purchase the property through the mortgage company and pay off all the debts and tax liens and pay Hannah Povey $2,000. The Povey's home in the Irving First Addition was also encumbered by two mortgages, and by 1929 it was foreclosed on and lost to the estate. By 1928, the debt of the estate to the federal government and payroll claims totaled $7673.55, far in excess of the $2,000 left in the estate (Multnomah County Courthouse, Portland, Oregon [MCC] 1928: Probate Records [PR]). After the payment of taxes, payroll claims were paid at 50% and other debts at 11%. By October, 1929, Povey Bros. was completely broke. According to the Probate Records,

> The Executrix proceeded to carry on the business carried on by decedent in his lifetime at 100 North 5th Street, Portland, Oregon, which was included in the assets of said estate, until a sale thereof, as hereinafter stated, and did manage and conduct said business to the best of her ability. But during that period by reason of business depression, large indebted-

> ness, limited credit and other circumstances over which the Executrix had no control, the business proved unsuccessful and resulted in very substantial loss to the Estate. (MCC 1929:PR)

During the final year of business, 1929, the name of the firm was changed to Imperial Glass and Art Works, Inc. Presumably, the property at 100 N. 5th Street was now being rented from its new owner for the purpose of continuing the business. Raymond Mooers, husband of Dymon Povey Mooers, was listed as the president and treasurer, and John C. Failing of the prominent Failing family was also an officer. According to notes made by Polly Povey Thompson in 1929, Imperial sold 100 shares of stock at $100 each. However the name change and sale of stock failed to keep the struggling business afloat, and by 1930 the firm, including all the glass, cames and studio equipment, was sold to W.P. Fuller & Co. of Seattle, which enlarged its glass department to design stained glass windows after buying the Povey stock. Albert Gerlach worked as a salesman for W.P. Fuller & Co., and later was head of their stained glass department. He continued to work for Fuller for 23 years, then went into business for himself for some time before his death in 1974. Some other Povey employees, including Mabel Johnson, Richard Kern, Henry Keller, William Schlegel, Henry Beneka and Charles Larsen, also moved to W.P. Fuller's and worked in their studio (Anderson 1991:1).

The death of David L. Povey and the sale of Povey Bros. brought about the end of an era. The company had supplied Portland with decorative windows for many of its most prominent buildings and homes for more than 40 years. While other artists, including some who learned the craft of stained glass at Povey Bros., continued to produce stained glass in Portland, there has never been another firm which lasted for as many years as Povey Bros. nor which has been as well known and successful.

CHAPTER IV

THE DESIGN PROCESS AT POVEY BROS. GLASS CO.

While many texts about stained glass have classified artists and their windows into schools and styles, few have examined the complete design process. Understanding how particular stained glass artists created designs involves examining their backgrounds, looking at the artistic sources they drew on, studying their design criteria, and outlining the actual process they used to create windows. This chapter will describe the ways in which artists at Povey Bros., in particular David Povey, went about coming up with ideas for window designs and making those ideas a reality.

As Lawrence Lee points out, "the word 'design' has endless interpretations." It can indicate an initial idea, a concrete template or a realized work of art or architecture. But as Lee goes on to say, the type of design most important to understanding stained glass is "that state of prediction, starting in the mind of the artist, which dictates all that will happen, as the commission grows from sketch to cartoon, cut line to glass, glass to fired paint work, and finally to leaded panels set in an opening" (1977:95).

Artistic Influences

From the founding of Povey Bros. in 1888 until his death in 1924, David L. Povey was the main designer and stained glass artist for the company (Figure 15). In fact, he appears to have designed every window made by the company until the 1920s, when a few other artists were hired to do designs. Understanding the design of Povey windows therefore necessitates an examination of David Povey's background, education and experience. Exploring these artistic influences will provide some clarification of just

Figure 15. Portrait of David Povey (Oregon Historical Society #0210G048).

where David Povey was coming from when he created designs for Povey Bros.

Joseph Povey

The earliest influence upon David Povey's artistic ideals was certainly his father, Joseph Povey. As mentioned earlier, Joseph Povey was a stained glass, and possibly also plate glass, maker who immigrated to the United States from England in 1848. Given his English origin and the time period in which he lived there, Joseph Povey almost certainly would have been involved with the Gothic Revival that swept through England in the early 1800s. As discussed in Chapter II, the Gothic Revival emphasized a return to

medieval stained glass techniques, including use of lead cames as part of the design and a reliance on glass colors rather than enamel paints to form figures and designs. The Gothic Revival also included a return to somewhat flat and abstract forms and patterns, contrasting with the realism of earlier more heavily painted windows.

While very few of the windows designed by David Povey for Povey Bros. could be described as Gothic in style, his windows do show many of the characteristics that became typical of stained glass during the Gothic Revival and which may have been taught to David Povey by his father. The Poveys typically included such American elements as opalescent glass and glass jewels in their windows and often used a variety of machine and hand made glass to create an overall design. Although these innovations were basically an American invention of the 1870s and 1880s, the mosaic method in which the glass was used to create a picture from colored pieces is clearly descended from the Gothic Revival and carries some of the same abstractions typical of neo-medieval designs. David Povey also made careful use of lead lines in his designs. While he used enamel paints to create figures and scenes, lead lines were always a critical part of the design, another tenet of Gothic Revival stained glass.

We can never know exactly what kind of instruction Joseph Povey gave his sons. However, it seems sensible to assume that he would have schooled them in the stained glass techniques of his time period and country of origin. His sons in turn adopted the ways of their father as well as the new methods made popular in the United States with the beginning of the opalescent era. They represented the next generation of stained glass, one which benefited from the renewed popularity of stained glass made possible by the Gothic Revival and which shaped the neo-medieval conventions to create new forms and window types.

Cooper Union Institute

David Povey spent five years studying art and design at the Cooper Union Institute for the Advancement of Science and Art in New York City. Cooper Union was founded in 1859 by Peter Cooper, a rags to riches entrepreneur, who among other achievements, built America's first steam railroad engine and invented Jello. Cooper also operated an iron foundry, glue factory, real estate and insurance businesses and once ran for president. He used the riches generated by his success to found and endow Cooper Union Institute to focus on education in the areas of art, architecture and engineering. It was also the first, and still is the only, private university to provide full academic scholarships to all its students. The Cooper Union campus features a Great Hall in which many famous artists and thinkers have spoken over the years.

Records from Cooper Union show that David L. Povey received a First Class Certificate in Perspective Drawing in 1884. A D.S. Povey is shown as receiving a First Class Certificate in Drawing from Cast and an Honorable Mention Award in Cast Drawing that same year. Almost certainly the D.S. is an error, and this is the same person. According to Polly Povey Thompson (ca. 1980s), David Povey also studied the history of art, architecture and drawing. Statistics from Cooper Union show that less than one third of the students admitted to study Perspective Drawing and Cast Drawing received certificates in 1884, so David Povey must have been a dedicated student.

Most classes at Cooper Union were taught at night so that students could work during the day. David Povey may have worked as an apprentice at a New York stained glass studio during this time. A breakdown of trades and occupations for students in Perspective Drawing and Cast Drawing shows that they were most commonly employed as teachers, painters, carvers, engravers and lithographers, artists, photographers, jewelers, engineers and clerks. David Povey may have been one of ten students listed under

"Sundry Occupations" (Cooper Union for the Advancement of Science and Art 1879:35).

The Cooper Union had a strong vocational focus. The Annual Report from 1879 expresses this philosophy:

> The Art Department of the evening schools, embraces instruction in all branches of drawing, Free-hand Drawing, Architectural, Mechanical and Drawing from Cast; also Industrial Drawing and Design, and Modeling in Clay. Lectures and lessons are given in Perspective. The design of all this instruction, as in the school of Art for Women, is practical, and as bearing on some useful employment in which the arts of design and drawing are the principal or accessory occupations. (Cooper Union for the Advancement of Science and Art 1879:8)

Like most of his fellow students, David Povey studied drawing to better enable himself to pursue a productive career. His years of study in combination with his natural ability made him a highly competent artist, a fact which is reflected in the hundreds of windows which he designed for Povey Bros. Glass Co.

Work Experience

Unfortunately, we do not know where David Povey worked during his time in New York, Newark or St. Louis. Further research at archives in those cities might reveal some information. However, it seems safe to assume that in the early to mid 1880s, almost every stained glass studio in the United States would have been producing the opalescent windows introduced and made so wildly popular by Louis Comfort Tiffany and John La Farge. As discussed in Chapter II, opalescent windows greatly expanded the appeal of stained glass, and it began to be used in many secular contexts rather than solely in churches. This transition was fueled by the invention of the landscape window and technical innovations like the discovery of plating and the creation of new types of glass.

David Povey would have been exposed to all these new American conventions during his time with various studios before he came to Portland. His work at Povey Bros.

clearly displays the influence of Tiffany and other opalescent stained glass designers. Like Tiffany, Povey often incorporated elements of nature in his work, especially flowers and sometimes landscape scenes. He also used opalescent glass in combination with rolled glass, ripple glass and pressed jewels to obtain intricately textured surfaces. In several churches, including the First Christian Church in Eugene and the First Christian Church in Seattle, David Povey employed plating to add depth and color to his design. Povey would have been familiar with all these techniques because of his background with studios in the east and was one of the first to import these technologies to the west coast.

Travel in Europe

David Povey continued to study work by other stained glass artists even as his own studio became more and more successful. Not only did he peruse the latest books and trade journals, but he also made a trip to Europe to study the stained glass there. In 1908 and 1909 he traveled throughout the old world, visiting England, Scotland, Belgium and France. Unfortunately, we have no record of his detailed itinerary, but it seems reasonable to assume that he visited many of the famous cathedrals and perhaps some glass manufacturing facilities and stained glass studios. He probably saw medieval work, Renaissance windows and Gothic Revival creations. Povey may have also seen some of the more unusual stained glass work of designers found in Europe at that time. In Scotland, architect Charles Rennie Macintosh incorporated unique and creative stained glass into his designs for buildings and furniture. When he visited Belgium, Povey might have seen the Art Nouveau glass found in the Brussels houses designed by Victor Horta during the mid 1890s. According to his daughter, Polly Povey Thompson, David Povey was most impressed during his voyage with the work of the English Pre-Raphaelites like William Morris and Edward Burne-Jones. Their work featured elegantly drawn figures, subtle coloring and attention to detail.

Unfortunately, at this point, the work of Povey Bros. has not been catalogued. If such a catalogue can be established it might be possible to ascertain what changes, if any, occurred in David Povey's design work after his trip to Europe. He certainly must have been inspired by the variety of stained glass that he observed and would have returned to Portland with new ideas.

Design Sources

In addition to drawing on the knowledge afforded to him by his education and travels, David Povey also used a variety of other sources to aid in his stained glass designs. Povey used a number of written sources as well as copies of famous paintings as inspiration for his own work. He also collaborated with clients and architects, incorporating their design suggestions and working from the design of the building in which his stained glass was to be housed. It is important to understand that prior to the advent of "modern" art, most designers freely drew from a wide variety of historical and contemporary sources and that this practice in no way reflected upon the creative abilities of the artist. David Povey's designs are still recognized today for their beauty and careful crafting and are excellent examples of late 19th/early 20th century stained glass.

Books and Magazines

When David Povey passed away in 1924, the probate assessors listed $834.00 work of books and journals as property of Povey Bros. The list includes plates of religious paintings, works on ecclesiology and volumes of artistic ornaments. Table 1 includes all of the works found in the studio. Authors are listed where possible, but many of these works are now are out print or are not readily identifiable by title alone.

This list shows that David Povey had access to a wide variety of artistic sources and reference material. Like most other stained glass makers and artists of the time,

Povey drew various elements from a range of historical sources. Existing art and ornament were often viewed by artists of the time as a type of huge patternbook from which new creations, or even unabashed recreations, could be made. H. Weber Wilson points out that these historicist windows can be divided into two types: "picture" and "pattern" windows (1986:42). Picture windows depict a scene or landscape and might have been drawn from the art plates or scenes from *Catholic Saints*. Pattern windows are geometric or abstract and were often drawn from designs originally meant for furniture or architectural design. Books like Franz Meyer's *Handbook of Ornament* contained a great variety of design patterns which could be infinitely combined. This book would have been owned by most stained glass studios at the time, as well as by architects and cabinet makers.

Religious and Other Paintings

Texts and plates of paintings frequently served as sources for Povey stained glass, as they did for windows made by other contemporaneous studios. Windows based on existing artwork probably cost less to design than original works, and clients might also have had a preference for favored artists or familiar scenes. Painters like Holman Hunt and Maxwell Parish were popular with the general public, and David Povey often recreated their paintings on glass or modified them slightly to suit a particular window shape or design.

The Probate Records list more than 30 designs based on well known paintings by such artists as Heinrich Hoffman, Bernard Plockhurst, Holman Hunt and Rafael. In many cases, several versions are listed for the same subject. For instance, 11 different cartoons of Plockhurst's "Good Shepherd" are listed. The Poveys appear to have drawn versions of this subject in various sizes and maybe with different borders or to fit different window shapes. Several versions of Holman Hunt's "The Light of the World" are also listed

Table 1. Books Found in the Povey Studio
(MCC 1924:PR 53-54)

#	Title	Author
6	Plates Haghe Sketches	
1	Stained Glass Esass Co.	
1	Klein Stained Glass New York	
1	Styles of Ornaments	Alexander Speltz
1	Atkinson Sign Painter's Manual	
1	Sunday Sorap Book (English)	
1	The Dore Bible	
1	Ornamentik des Mittelalters in Plates (German)	Carl Heideloff
1	La Decoration Arabic Paris (French)	J. Savoy & Co.
3	Studio Year Book (1910, 1911, 1906)	
1	English Furniture Woodwork and Decorator, 18th Cent.	T. A. Strange
2	The Architectural Annual of Architectural League of Am.	
2	Portland Architecture Club Year Book (1909, 1910)	
1	Cleveland Architecture Club Year Book (1900)	
4	Cathedral Cities of England, Venice, Cathedral Cities of France, Versailles, and the Trianos	
1	French Renaissance Plates	Bates Kimball
1	II Lagno, "Gothic," "Italian" (Bought Aug. 25, 1912)	
1	Dec-co-ne-o New York	Haqll & Garrison
1	London Art Glass and Church Furniture	Jones & Webb
2	Alters	
1	Tischluarbeitan figurall Plastik Plates-Wien, Verlag, Von Anton Schroll & Co.- Ger. - #2 Fuguaale - Malerie, Same pub. as above - Plates - #1 Urban Rdig Maleriinoa LL "Austria" - Plates Verlag Anton Schroll & Co. Wien Materiaoux et d'Art Deco ratif "French" Plates	
1	Imago Picta 1903 "Austria"	
1	Catholic Saint "Goldsmith"	
2	Cartons by F. Urban Austria	
1	Moderne Kirchen Maleri	Anton Schroll & Co.
1	New York Paisance	
1	Young's Concord of Bible	J. K. Gill
1	Great Painter	
6	Modern Decorative Art	
1	Masonic Dictionary	
2	Ecles. Statuary	
1	Holiday Stained Glass	
4	Kunstverg Lasuneen	
2	Lasuneen	
1	Leaded Glass	

Table 1. (Continued)

#	Title	Author
1	Decorative Art	
2	Decline and Fall of the Roman Empire	
3	History of Rome	
1	Deiglfaffiche Glasmaterei	Robert Bruick
1	Nichliche Kunst Cartons	I Fagle
1	Studies in Drapery and Friling	
1	Illustrated Symbols and Emblems	H. J. Smith
1	Salon Pictures Figure Work	
1	Designs for Electrical Fixtures	
1	Heraldisahar	
1	Heraldry	
2	Post Albums	
1	Decorative Documents	
1	Catholic Saints	
50	The International Studio Complete	
8	Years of Art Journal	
1	Ornamental Plaster	
1	Eccles. Art	Franz Meyers
1	Hand Book of Ornament	Franz Meyers
1	Hand Book of Ornament	Gauld

(Figures 16 & 17). According to James Sturm (1982:53), this Pre-Raphaelite painting, c. 1855, is the most reproduced religious painting ever, and it was recreated in stained glass by many artists and studios. In all likelihood, far more than 30 designs were made after familiar paintings. The probate listing of cartoons is incomplete and often missing information as to artist, date and location.

Collaboration with Clients and Architects

Before beginning a window design, David Povey studied architect's drawings, noted dimensions and the architectural treatment of the space, and talked with the minister or client. Clients, of course, had a large degree of input into the subject and design of a window. For churches, the minister, rabbi or building committee was often responsible

Figure 16. Holman Hunt's Light of the World (Maas 1984:inside cover).

Figure 17. David Povey's stained glass interpretation of Hunt's painting at the First Christian Church in Eugene, Oregon.

for selecting a stained glass studio to make windows and for overseeing their design. Architects of newly built churches might also be involved, but many churches did not install stained glass until sometime after their building's construction, primarily for budgetary reasons, thereby limiting the influence of the church's original architect.

There are certainly cases, however, where David Povey worked hand in hand with architects or builders to create stained glass designs. David Povey must have collaborated on projects with his father in law, Peter Hobkirk, and friend, Richard Martin. As a member of the Portland building community, Povey was certainly friendly or at least professionally acquainted with other architects as well. These architects probably involved themselves in stained glass design to a varying degree. One architect who appears to have influenced the designs Povey produced for his buildings was William Knighton. Knighton, a contemporary of the Poveys, designed several buildings in which Povey glass appears, including the Deepwood House Museum and the Justice Building in Salem, the Governor Hotel in Portland (provisionally identified as Povey glass) and Johnson Hall on the University of Oregon campus. In several of these buildings, the stained glass seems to mirror or complement elements of the building design. The panels which once formed a skylight in Johnson Hall contain a UO logogram which matches others found in plaster elsewhere in the building's interior, and the skylight's geometric, vaguely classical design complements the building's American Renaissance style. The skylight at the Governor Hotel contains bell shaped elements typical of Knighton's somewhat unusual building style, and stained glass mosaics appear of the outside of the structure (Figures 18 & 19). The Probate Records include one reference to a design actually done by an architectural firm. This was a design for the Williams Residence in Portland by the firm of Doyle and Paterson, two well known area architects. It is very difficult to prove which architects David Povey may have worked with and how they

Figure 18. The Governor Hotel was designed in 1911 by Oregon architect William Knighton.

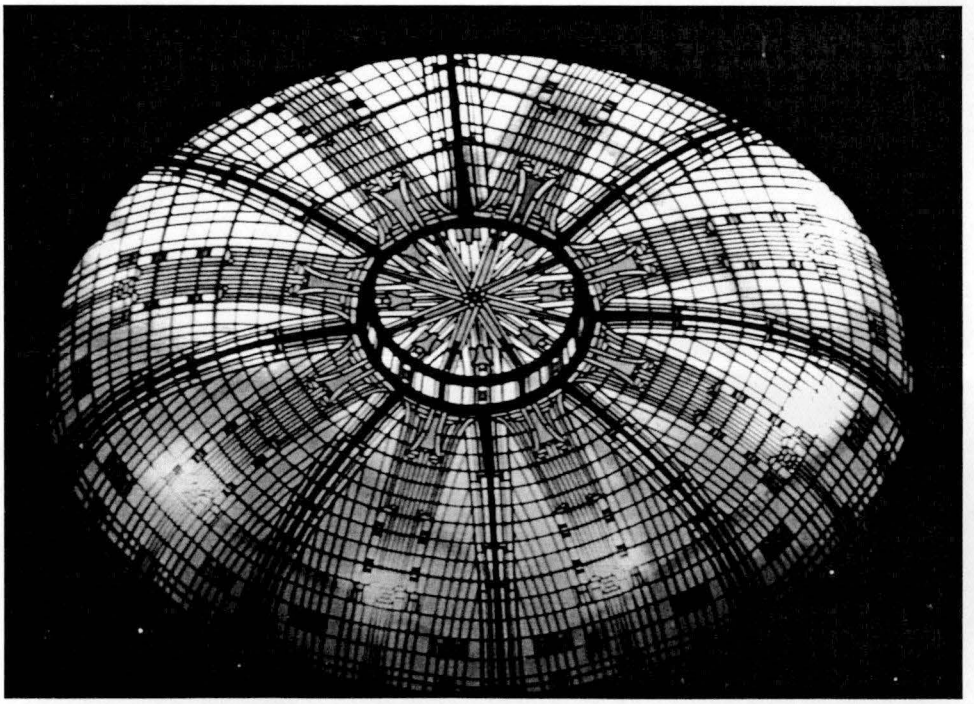


Figure 19. The first floor skylight at the Governor Hotel draws on the architectural elements of the building's exterior.

influenced his designs, but it seems safe to say that in some cases there was a dialog between architect and stained glass designer, and in most cases Povey glass is sensitive to the building in which it is housed.

Design Criteria

Like any other art form, stained glass possesses characteristic of color, line and scale which are used to express the intent of the work. Conventional elements associated with painting such as subject and style are also applicable to stained glass design. Unlike other art forms however, stained glass is a two dimensional object which creates the effect of a "substance suspended in light without contributing any immediate satisfaction of surface" (Lee 1977:62). This unique property of stained glass affects all other design elements and requires the stained glass artist to consider the effects of refracted as well as reflected light upon his work.

Many people admire and enjoy the windows that David Povey designed, but few stop to consider what makes these windows so beautiful. With his knowledge of drawing, art and stained glass design, Povey had a definite understanding of the elements which when combined together created a meaningful and attractive whole. While we cannot know exactly what was in his mind as he went about combining colored glass with lead lines and painted elements, an examination of his work gives us some understanding of common qualities and techniques.

Scale

According to Lawrence Lee, "the first impact of a window, whether the spectator is aware of it or not, is its scale. By scale I mean not only its actual dimensions but also the fundamental impression of size and proportion in all the elements of pattern, figures,

imagery and even color, that are presented to the spectator in relation to a particular architectural setting" (1977:44). Scale is a central element in any design and maybe especially so in stained glass which is often meant to be seen from a distance in a large space, and which is also uniquely integrated into its architectural surrounding.

David Povey seems to have been very conscious of the relationship between a stained glass window and the building in which it is situated. While many of his creations are grand and impressive, they serve to complement rather than overwhelm a particular space. His designs for houses employ a relatively small scale. While they may use brilliant colors, the windows are usually small in size and are sometimes coupled with a larger clear window, mitigating the effect of the stained glass and allowing for natural light to enter the space. They tend to be abstract, portray natural elements such as dogwood flowers, or have a small central medallion with a painted figure, like the fish transom at the John Povey House in Portland (Figure 20).

Povey reserved larger scale designs for grander spaces like churches and public buildings. For example, the First Congregational Church in Portland contains a stretch of five very large panels as well as a rose window over three large Gothic arched windows (Figure 21). The biblical figures in the five panels are monumental and roofed by golden Gothic tracery. While all these windows are quite large, their scale is appropriate to the High Victorian Gothic style of the church, the size of the building and the spiritual atmosphere of the interior.

Color

The quality many people most enjoy about stained glass is its brilliant color. It strikes the eye immediately; the light passing through the window creates illuminated colors quite different from those in a painting or mosaic. As Lawrence Lee says,

> Of all things, colour in a window is the most critical element, not only with regard to its control by the artist, but in its power to have a life of its own once it has passed out of his hands and has been set immovably in the public place. It is no playground for ephemeral emotions but an activity in light that must be able to hold its drama, story, image, living yet controlled in a single plane-in fact, a stage without depth. (1977:61)

The use of color in window design includes the interplay of light, dark and medium tones and the arrangement of color within the linear arrangement of cames and window lines (Lee 1977:60).

David Povey did all the "coloring" of the windows himself, meaning that he selected the pieces of glass to be used in each part of a design. According to Polly Povey Thompson (ca. 1980s), the juxtaposition of color was very important to her father. She described a sort of formula he used for determining the ratios of color within a window. The formula called for a low keyed, subtle color to make up 85%-90% design, with a contrasting bright color making up the remaining 15%-10%. Windows like the skylights in Johnson Hall at the University of Oregon and the Justice Building in Salem seem to conform to this formula. These skylights, which are very similar, contain a majority of caramel opalescent, with some creamier colored and some more amber tones. These fairly neutral colors are then complemented by a small amount of contrasting purple

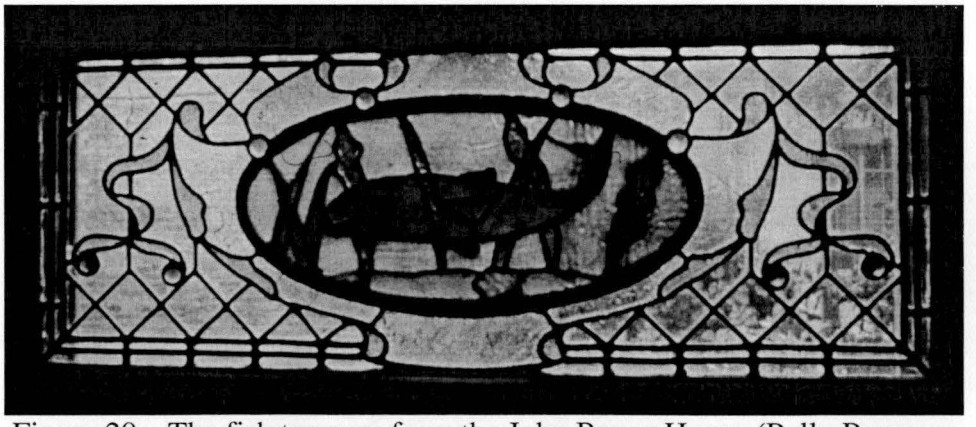


Figure 20 . The fish transom from the John Povey House (Polly Povey Thompson Collection).

Figure 21. The five large biblical windows from the First Congregational Church in Portland.

opalescent and green ripple glass. Other windows contain colorful medallions set in geometric panes of creamy or clear glass. These type of medallion windows can be seen in many churches including the First Christian Churches in Corvallis and Seattle. Even more seemingly colorful windows like the abstract Victorian windows seen at the Old Church in Portland contain a majority of subtly colored glass in clear and pinkish brown tones.

Some windows are more brightly colored and do not seem to follow the "formula." The dogwood flower and bird windows seen at the Deepwood House Museum in Salem contain a good deal of bright blue, yellow, pink and green. The blue seen in these windows, a Kokomo opalescent blue, was reportedly one of David Povey's favorite colors. The First Congregational Church on the Portland Park Blocks also contains Povey windows which make good use of this Kokomo blue. Some of David Povey's more highly painted windows, like the Shakespearean scenes at the Elsinore Theater in Salem seem to stray from the light to dark formula as well. However, the paint used on

these windows modulates the light passing through, so that the presence of many dark and bright colors is not overwhelming.

The colors David Povey selected also help to emphasize the linear design of his windows. Many windows contain colored borders which accentuate the shape of the window opening and tie the composition into its architectural setting. Povey also used shading within the glass as part of the overall design. Opalescent glass often has many color variations within a single square. Povey carefully selected individual segments to give the desired effect within a composition.

Line

While less flashy and noticeable than the colored glass, lead lines and frames play an extremely important role in the design of a stained glass window. These lines not only provide the structural support necessary to hold the window together, but they also outline the design of the window by imposing a natural scale of interval between voids and solids. The first line in evidence is the exterior frame of the glass. Generally determined by the architect during the design of the building, window fenestration provides the limits and exterior structure for the stained glass. The interior lead lines can then compliment the overall fenestration lines or provide "contradiction" or contrasting lines. Finally, painted lines fill in the shapes established by lead lines and glass colors (Lee 1977:51-57).

Like many stained glass artists after the Gothic Revival, David Povey used leading as an important part of the design. The cames not only supported the window, but outlined distinct shapes and figures. Povey often used a variety of different came sizes within an individual design, creating heavier and more delicate areas within the whole. For example, the Johnson Hall skylight, mentioned earlier, contains five different came

widths, ranging from five eighths to one eighth of an inch. These particular cames, which are zinc rather than lead, were also electroplated with a bronze paint. This manner of painting the cames makes the leading appear even more a part of the design, complementing the overall color scheme rather than merely appearing as dark voids between colors. Although this is a decorative feature not commonly found in Povey windows, it shows the versatile way in which David Povey was able to incorporate cames into his designs.

Polly Povey Thompson (ca. 1980s) reported that her father sometimes used a "mended effect" in certain windows. This effect involved designing intentional mends into a window to give it an antique look. Although it is difficult to tell an intentional mend from a later repair of an actual break, the panel of "Consider the Lilies" seen at the Old Church in Portland appears to make use of the mended effect, with a diagonal came line passing through a large blue circle of glass (Figure 22).

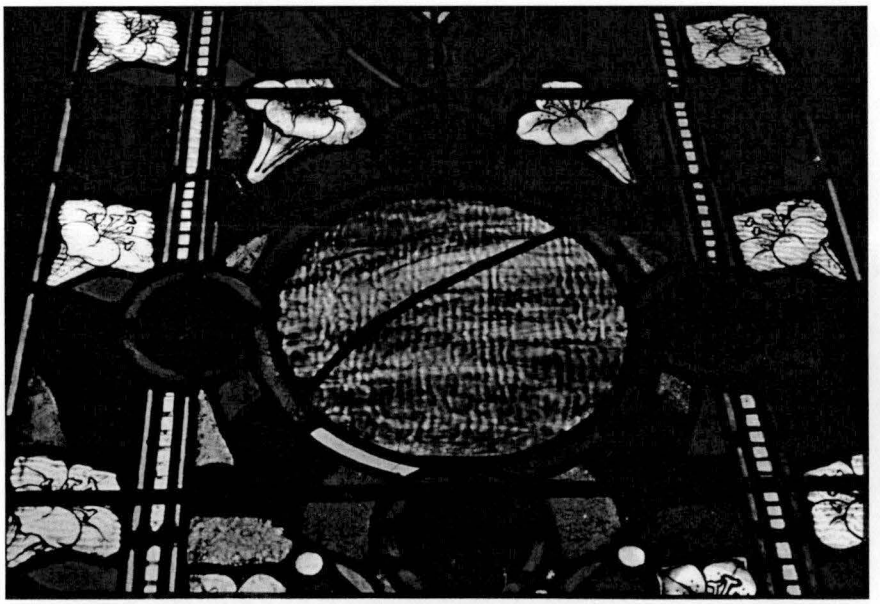


Figure 22. A possible use of the mended effect at the Old Church in Portland.

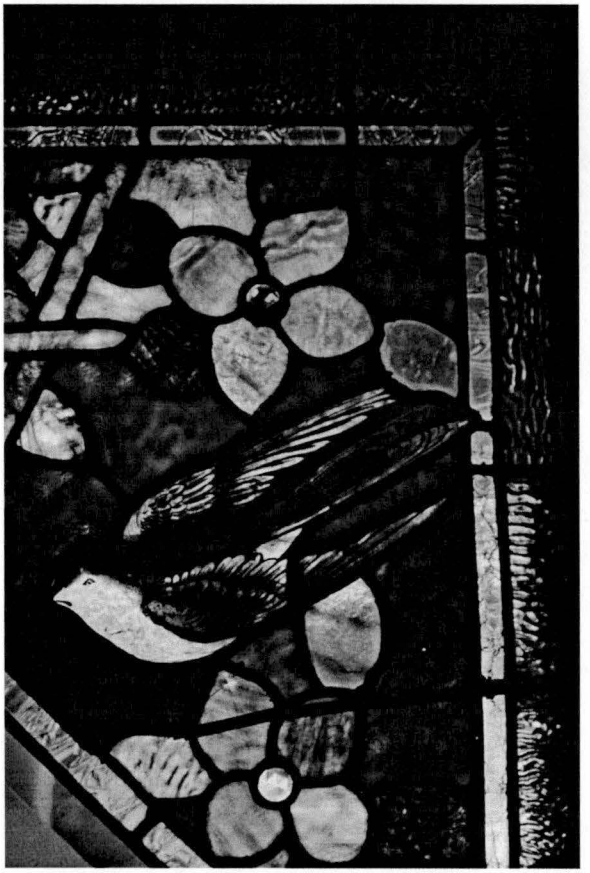


Figure 23. A delicately painted bird at the Deepwood Museum.

Povey's skill as an artist can also be seen in the painted line and detail found in much of his work, especially the church windows which tend to contain more painted elements. His carefully drawn lines can be seen in the tiny birds flying across the Deepwood windows in Salem (Figure 23). The delicately drawn lines emphasize the fragility of the creatures as well as their swift flight. Painted lines also create the features of Christ and the lines of his robe at the First Christian Church in Eugene (Figure 24). The painted lines of his garments create not only the appearance of drapery but also a smoky effect that complements the opalescent glass of the border.

Figure 24. A portrait of Christ seen in the First Chrisitian Church in Eugene.

Glass Texture

Another design characteristic common to Povey glass is the use of various types of glass within the same window. David Povey used opalescent, cathedral, rolled, rippled and beveled glass together to create an overall design. He also frequently used pressed glass jewels of different shapes, colors and sizes. The intermixing of these various types of glass created interesting surface textures, diminishing the flat effect that a single type of glass might have produced. The jewels in particular add a three dimensional effect, especially some of the large chunky jewels used in Victorian windows like the one found in the Old Church. The Mooers family of Seattle (descendants of David Povey) own a window that is believed to have come from the Hoyt Hotel in Portland. This window combines clear beveled glass, light yellow crackle glass, golden ripple glass, blue and green opalescent glass and numerous glass jewels (Figure 25). As with color, David

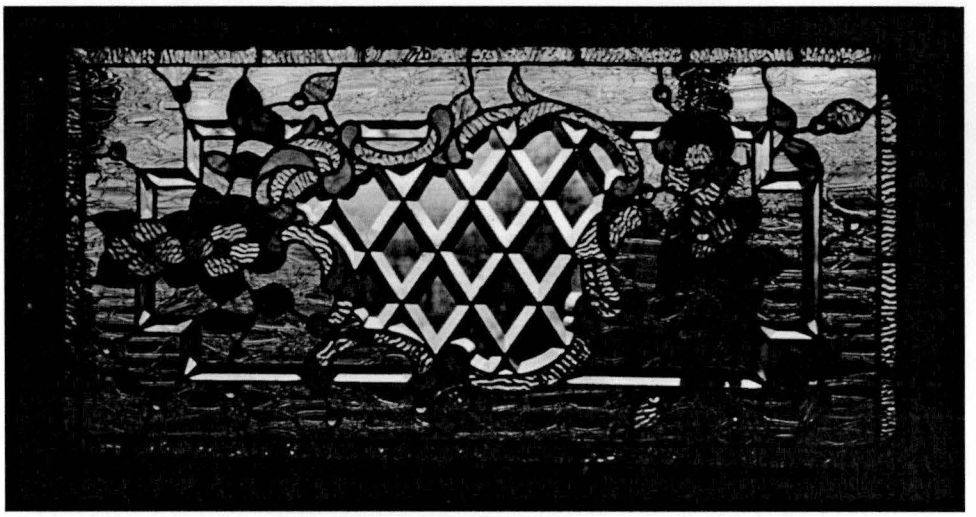


Figure 25. This Povey window, believed to have come from the Hoyt Hotel, includes many types of glass.

Povey controlled the combination of glass textures to create an interesting and unified whole.

Subject and Theme

In addition to elements of composition like scale, line and color, the subject and theme of a stained glass window are essential to its success and public appeal. While many themes, particularly for church windows, were determined by the clients, stained glass artists like David Povey sometimes had flexibility in their choices of subject matter, although now it is difficult to say with which windows David Povey was able to exercise the most creative freedom. Probate Records listing the cartoons drawn by David Povey show a variety of religious themes, designed for many different denominations. Common subjects include popular religious tableaux such as portraits of Christ as the "Good Shepherd" and "The Last Supper." Also included are many different depictions of the saints, particularly the disciples, and more secular panels such as "Consider the Lilies." The vast majority of the themes seem to be drawn from the New Testament, with very

few Old Testament subjects included.

It is unfortunate that the list of Povey cartoons found in the Probate Records is not complete. This list includes over 600 designs. However, there is a break between 685 and 905, suggesting that almost 1,000 cartoons were originally on the list. The list also tends to include mostly church windows or larger projects for groups like the Elks or Masons. Apparently not included are the many smaller cartoons David Povey must have drawn for individual homes, leaving us with an unclear record of the most popular subjects for domestic designs. According to Polly Povey Thompson (ca. 1980s), her father enjoyed depicting elements from nature, including dogwood blossoms, roses, lilies, acanthus leaves, and birds, all of which would have been popular subjects for turn of the century homes. As put by H. Weber Wilson, "Flowers were the most popular subject to be rendered in glass in the nineteenth century, partially because their multipart forms are so adaptable to mosaic construction. Also, people of that era had a strong awareness and appreciation of nature, and enjoyed seeing that interest reflected in art and decoration" (1986:73).

Style

No single term can be used to describe the myriad of windows created by Povey Bros. While many of them might be called Victorian, David Povey designed in many different styles. With a career that spanned more than three decades, he naturally created windows that were suitable to changing tastes and architectural styles. His windows ranged from Renaissance to Neo-classical to Arts and Crafts. Particularly in residential designs, Povey employed a variety of styles including Prairie, Art Nouveau and Aesthetic. Like the architects of this period, Povey drew on a wide variety of historical styles as well as new movements like Art Deco and Mission to create an eclectic range of

stained glass that was meant to please the viewer and complement its architectural setting.

Design Process

Actually combining color, line and texture into a complete work followed an established design process in the Povey studio. First, a small scale model of the window, including its actual final colors, was drawn. Next, a full size black and white drawing, or cartoon, was sketched on heavy paper. The cartoon was then used to make two more copies, one of which would be used as a pattern for the window. The appropriate glass for each pattern piece was then selected. Finally, details were painted onto the glass where needed, and it was fired in a kiln. These were the same steps followed in stained glass studios across the country, and are essentially the same techniques used since medieval times. While the steps of the design process are fairly universal, it will aid our understanding of the Povey business to take a detailed look at how these steps occurred in that particular studio. Fortunately, Dymon Povey Mooers, daughter of David Povey and also a designer at Povey Bros., wrote an unpublished manuscript titled "Making a Stained Glass Window - The Process" sometime before her death. Her descriptions of the design process will be incorporated into this section as much as possible to give a first hand account of designing in the Povey studio.

Consultation with Clients

The first step in making any design would be to meet with clients and/or architects and discuss the project. At this time, David Povey would have sounded out matters of subject, style and color, discussed cost and received measurements for each window opening. Povey Bros. kept a stock of watercolors as well as small sample windows to

take with them when they met with clients to show their work and provide the clients with some ideas. While some clients wanted original works, others would have chosen from stock designs already drawn and used in some other church or home. These designs could be rescaled to fit the window opening, and were probably much less expensive than a newly drawn cartoon. Once a general selection had been made, the clients would continue to be involved in the growing design. It was the job of the studio artists to continue to consult with the clients throughout the design process.

Watercolor

> In the first phase the design is drawn to scale and rendered in watercolor- the idea being to give as true and complete an impression as possible of the actual appearance of the window when finished and set in final position. (Mooers ca. 1970s)

Dymon Povey Mooers' words succinctly and accurately describe the purpose of the first concrete phase of design, the watercolor (Figure 26). Watercolors, while drawn to scale, were small, portable versions of the actual window. Painting these detailed watercolors required considerable artistic skill. David Povey owned three water color boxes and $207.00 worth of water color brushes (MCC 1924:PR 44). Once complete, watercolors would be shown to the clients for their approval and would continue to serve as a reference for the remainder of the design process. Unfortunately most of the Povey Bros. watercolors have been lost, but the family still owns several made for the Church of the Assumption in Bellingham, Washington.

Cartoon

> The design having been drawn and approved by the client and architect, the cartoon, or full sized drawing is next made. This is drawn to the actual size of the window opening, and the leads, bars and all details of the finished window are carefully planned. (Mooers ca. 1970s)

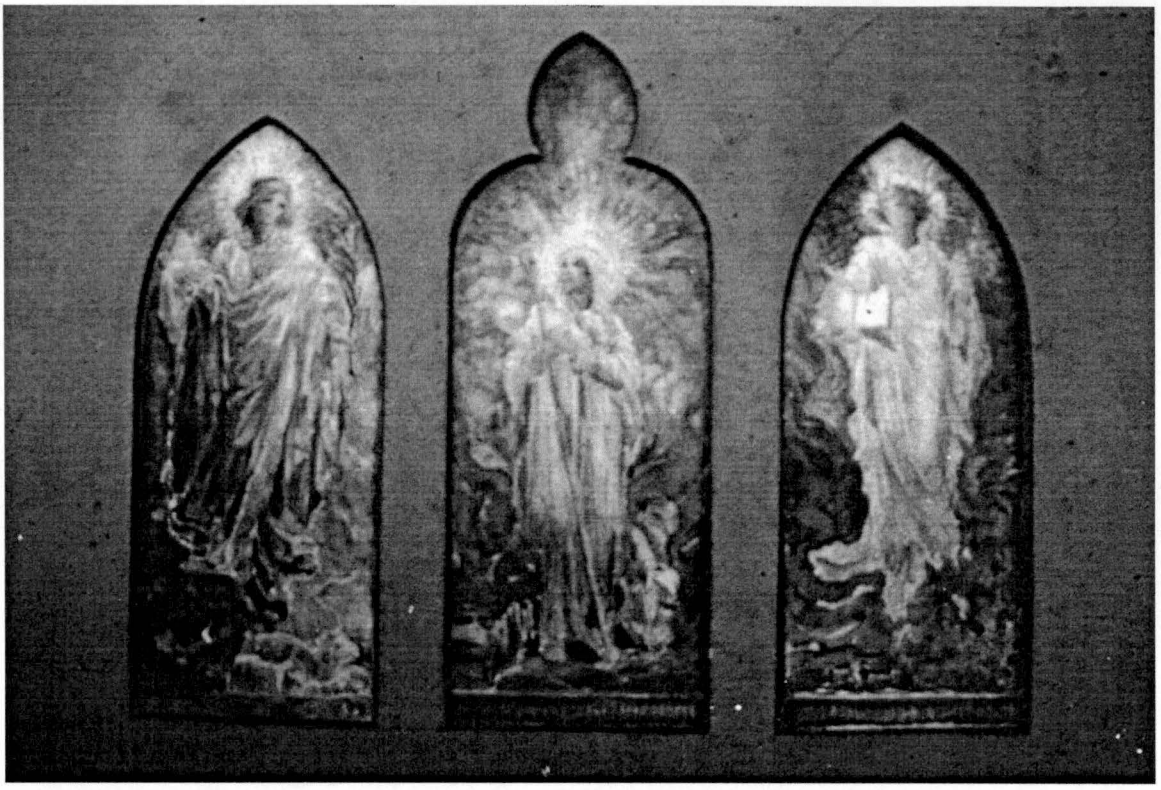


Figure 26. A Povey Bros. watercolor for an unidentified church (Polly Povey Thompson Collection).

The creation of the cartoon is a critical step in stained glass design (Figure 27). Often David Povey's assistant artists were responsible for using the watercolor to create a full scale model of the window to be made (Thompson ca. 1980s). The artists used drafting tools such as the two sets of drawing instruments, one large combination compass, "T" squares, straight edges and drawing boards listed in the Probate Records to make the cartoon (MCC 1924:PR 44). Sometimes they also used templates made at the job site to aid in the design. The cartoon showed lead lines in their actual width and was very carefully drawn. Any painting to be done on the piece was shown in black and white.

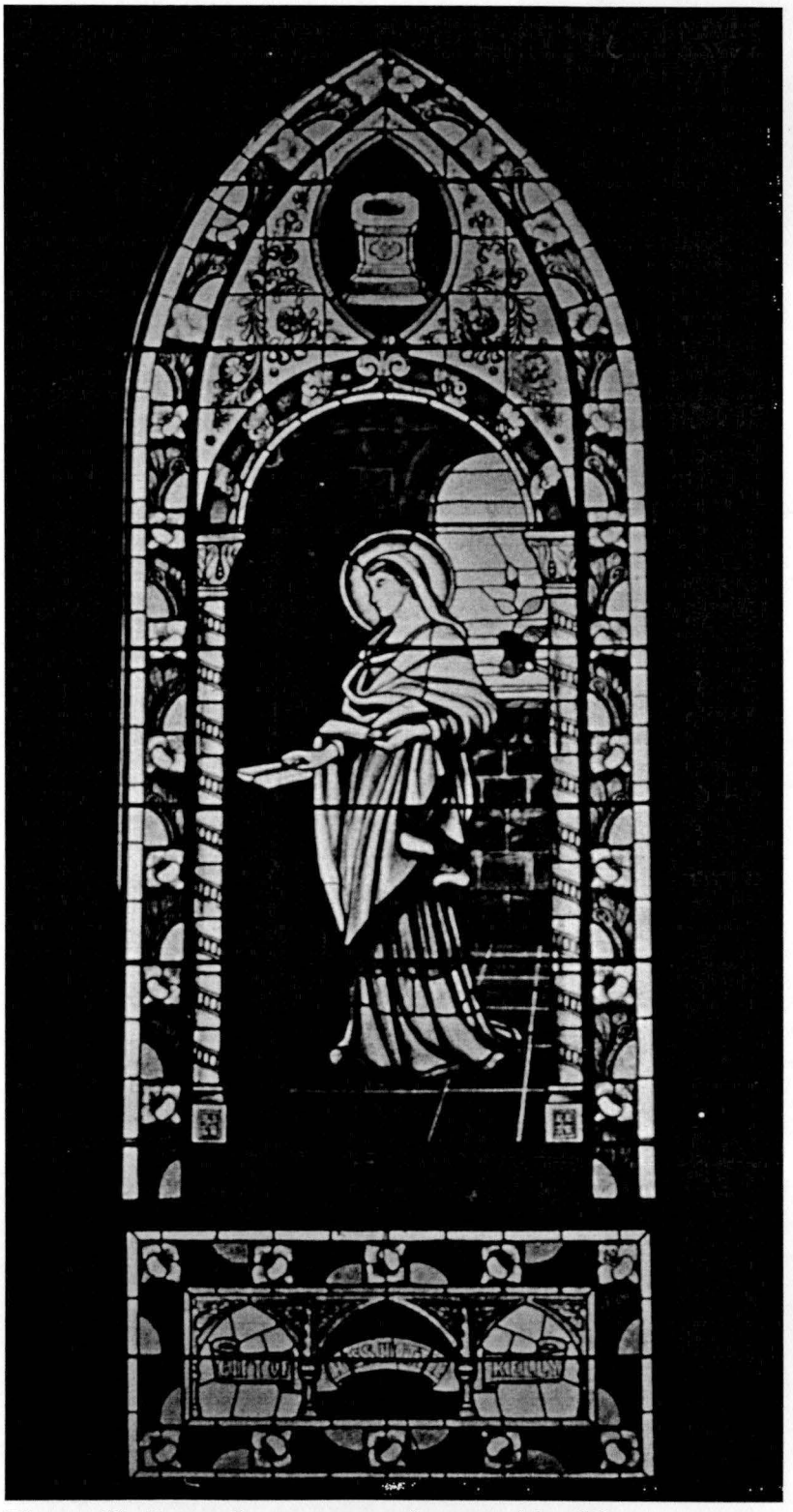


Figure 27. Povey Bros. cartoon for an unidentified church (Polly Povey Thompson Collection).

Pattern

> From this cartoon, lead lines and bars are reproduced in a tracing called the cut-line or working drawing. Next, the cut-line is laid on the pattern paper with a sheet of carbon paper between. Then by going over each line with a hard pencil, an exact duplicate of the cut-line drawing is transferred to the pattern paper. This pattern drawing is then cut up into separate pattern pieces by the aid of double-bladed shears which takes out an allowance for the heart of the lead. (Mooers ca. 1970s)

This step provided the patterns to be used in choosing and cutting pieces of glass to fit into the mosaic design. Like the cartoon, the working drawing was a full size, to scale model. The working drawing was saved to use as a template during work, while the pattern copy was cut up to be matched to the glass. The pattern was copied onto heavy detail paper and cut out with one of the six pairs of special cutting shears recorded in the Probate Records (MCC 1924:PR 44).

"Coloring" the Window

> The next step is selecting the glass or as is technically termed coloring the window. With the original drawing as a guide, ruby, blue, green, gold, purple and white or varying tones of intensity and value are selected and cut to the shapes of the patterns. Cutting is done with a steel wheel which must be sharpened frequently and is dipped into Kerosene before cutting. (Mooers ca. 1970s)

As mentioned earlier, David Povey did all the coloring of the windows, and this step was an important element in the overall design of each stained glass piece. He carefully chose the color, texture and grain of each section of glass, using the watercolor to make his selections. Individual sheets of glass, especially opalescent glass, have a great deal of variation within each sheet. Povey chose the portions best suited to his designs.

David Povey had a wide variety of glass available from which to choose. Analysis of the Probate Records shows that there were more than 30 different types of glass, in

many hundreds of colors, stocked in the Povey studio at the time of David Povey's death. Table 2 shows the different varieties of glass in order of their abundance. Unfortunately, while the Probate Records assess the value of most of the glass types by their square footage, some are valued by the pound, making them difficult to compare. Those evaluated by weight are listed in a second table. These glasses, mostly American opalescents, were probably some of the most common glasses used and were most likely sold by the pound, rather than the square foot like some of the more expensive imported or hand made glasses.

The records also list more than 35,000 glass jewels, ranging in size from one half inch to two and a half inches. Other glazing supplies are included as well: plate glass, lamp shade panels and hardware, easel plates and a variety of lights glazed in metal. Although it is difficult to compare pounds to square feet, it appears that common opalescents, at almost 30 tons, were the most prevalent type of glass in the studio. Other common types include English Cathedral, Opalescent Cathedral, colored Moss glass and American Cathedrals. Cathedral glass was machine made, usually came in pale tints and was available in a wide variety of textures. It was also usually much less expensive than hand made Antique glasses. Opalescent glasses were also machine made and relatively inexpensive. They were available in a number of textures such as Drapery or Variegated. The common opalescents found in the studio seem to have primarily been made by the King and Dannenhoffer glass factories and included a large number of colors such as Dove, Peltier Yellow, Iridescent and Butterfly. Some of the glass types were imported from Europe. Polly Povey Thompson (ca. 1980s) reported that David Povey preferred English and French glasses because he felt they were made with a type of silica superior to that used in German or American glass manufacture. While opalescents and cathedrals dominate, the inventory clearly contained a wide range of less common glasses

Table 2. Povey Bros. Glass Inventory
(MCC 1924: PR 1-34)

Glass Type	Square Ft.
English Cathedral	6688' 8"
Opal Cathedral	5292' 8"
Moss (colored)	2222' 11"
American Cathedral	1418' 10"
Ripple	811' 8"
German Antique	734' 0"
Wiss Opals	689' 0"
English Antique (Common)	616' 0"
Cathedral Opal	290' 0"
Moss (opal)	231' 10"
Crackel	229' 4"
Bent Glass	153' 3"
English Antique (Ruby)	151' 1"
Moss (white)	125' 10"
White Fluted	114' 2"
White Crackel	91' 0"
Irish	79' 0"
China White	79' 0"
Rippled Opal	60' 0"
White Opal Sheet	51' 8"
Assorted French Opal	50' 0"
Ondoyant	48' 10"
Flash	40' 0"
Variegated Cathedral	36' 6"
Sandblasted English Cathedral	28' 8"
White Enamel or Clear	22' 10"
Variegated Cathedral Opal	11' 9"
Florentine	8' 6"
Ruby Opal	6' 8"
Mexican Onyx	4' 6"
Variegated Opal	3' 4"

Glass Type	Pounds
Opals Common	29,707
Drapery Opalescent	150
Gold and Ruby Opal	40

that would have been used as accent pieces or to provide additional texture. David Povey could have selected among these glasses as he saw fit, choosing the colors and finishes most appropriate to his designs.

Painting

> Each piece of glass is now placed on the cartoon and the detail of the design (features, drapery folds, patterns, etc.) are traced on the glass with an opaque, vitrifiable pigment. The pigment is composed of oxides of iron and manganese ground up with powdered flint glass (which is soft glass of low melting point) and mixed with Venice turpentine to cause it to adhere. The painted pieces are now assembled on a large plate glass easel beneath which lies the cut line drawing to serve as a guide; to this plate the pieces are fastened with a mixture of melted wax and resin at the corners of each separate piece. The plate glass with the pieces fastened to it is now placed upright on an easel where direct light will shine thru--so that now the artist has a view of the colored mosaic window. Each piece is covered with a thin film or "matt" of opaque pigment--the same kind of vitrifiable pigment that was used for tracing the outline of details, but now the adhesive medium is gum arabic and the paint is very thin (thinned out with water). Once dry the paint is rubbed with the finger or scrubbed with a stiff bristle brush until most of the paint is removed, leaving just enough to give a more effective texture to the glass, mellowing the color and shading where necessary without losing more than necessary of the intrinsic beauty and brilliancy. Oil paint is used then for deepening shadows. The easel is then laid flat and glass removed. They are now put into the kiln and the heat gradually raised until the glass attains a cherry red color--literally red hot. The surface is now in a molten state with the pigment that was painted on becoming a part of the very glass itself. The heat is reduced until the glass is safe to be removed. Once more the pieces are assembled on the easel and waxed up. This is for the purpose of retouching and intensifying color if necessary, deepening shading, etc. Again it is put thru the kiln. Then it is ready for the glazier (the workman who assembles it with lead). (Mooers ca. 1970s)

The studio possessed $87.00 worth of the glass pigments mention by Dymon Povey Mooers when David Povey died. Table 3 includes all the paints listed in the Probate Records in order of the amount on hand, followed by the thinning and mixing ingredients.

Table 3. Inventory of Glass Paints and Stains
(MCC 1924:PR 35-36)

Amt.	Pigment
3.5 lbs	Umber Brown
3 lbs	Tracing Brown #1
3 lbs	Tracing Black #61
2.25 lbs	Ultramarine Blue #1092
2 lbs	Coral Red #1321
1.25 lbs	Grey for Flesh #1270
.75 lbs	Obscuring White #1400
.75 lbs	Hair Brown #1120
.5 lbs	Best Black #1050
.5 lbs	Gold Yellow #1368
.5 lbs	Silver Stain #1382
.25 lbs	Transparent Yellow Red #4065
10 oz	Transparent Flesh #1338A
8 oz	Shammy Brown #1132A
3 oz	Pompadour Red #1329
2 oz	Red for Flesh #1333
2 oz	Ruby Purple #1293A
2 oz	White Enamel #1418
2 oz	Grass Green #1-#1221
2 oz	Vandyke Brown
2 oz	Yellow Orange #1376
2 oz	Blue Stain
2 oz	Delft Green #1216
2 oz	Shammy Brown #1131
1 oz	Yellow Brown #1-#1145
1 oz	Gold Stain
1 oz	Sepia Brown #1130
1 oz	Dark Red for Flash #1524
1 oz	Transparent Amber #1378
1 oz	Gold Yellow #1368
1 oz	Red for Flash #1325
1 oz	Yellow Stain
.5 lb	Anese Oil
.5 lb	Castor Oil
.5 lb	Ascetic Acid
1 pt	Damar Varnish
.5 gal	White Enamel

It is interesting to note that black and brown are by far the most abundant colors, suggesting they were the most commonly used. These colors would have been used for outlining details as well as stippling or matting, techniques which blocked light being refracted through the glass. In her discussion of the manufacture of stained glass windows, Dymon Povey Mooers commented that, "it should be born in mind that the pigment is employed merely for giving detail and stopping out light where necessary and not to give color" (Mooers ca. 1970s). While the large amounts of black and brown seem to bear out this statement, there are many other colors listed which would have been employed in certain situations. Reds, for example, might have been used to give color to lips or cheeks.

In addition to the inventory, the Probate Records also include the Povey Bros. accounts receivable listings for April 1924 through May 1925. While the paints listed by the assessors appear to be commercially purchased products, no entry recognizable as a glass paint manufacturer can be found in the accounts receivable for this time span. There are, however, several listings for art and glass supply shops like Rasmussen & Co. and W.P. Fuller. Povey Bros. probably obtained their paints from these local retail outlets. Further research might match the color numbers with a paint manufacturer. Such a matching would be valuable in doing restoration work on Povey windows where the paints have deteriorated.

According to Polly Povey Thompson (ca. 1980s), the assistant artists were responsible for grinding the glass paints and preparing them to be applied. The Probate Records include one "Paint Grinder" which they would have used in their work (MCC 1924:PR 40). There was typically a hierarchy among stained glass painters within a studio. As pointed out by Bryce Anderson, a Portland stained glass worker who began his career in the 1920s, "many studios in the period between 1890 and 1920 had artist

specialists; there were designers, cartoon makers, flesh painters, drapery painters, ornament painters and other specialists" (1991:3). The flesh painters were generally the most experienced, and this task was probably done primarily by David Povey himself (Figure 28). Assistant artists might have painted borders or other less crucial elements of the window.

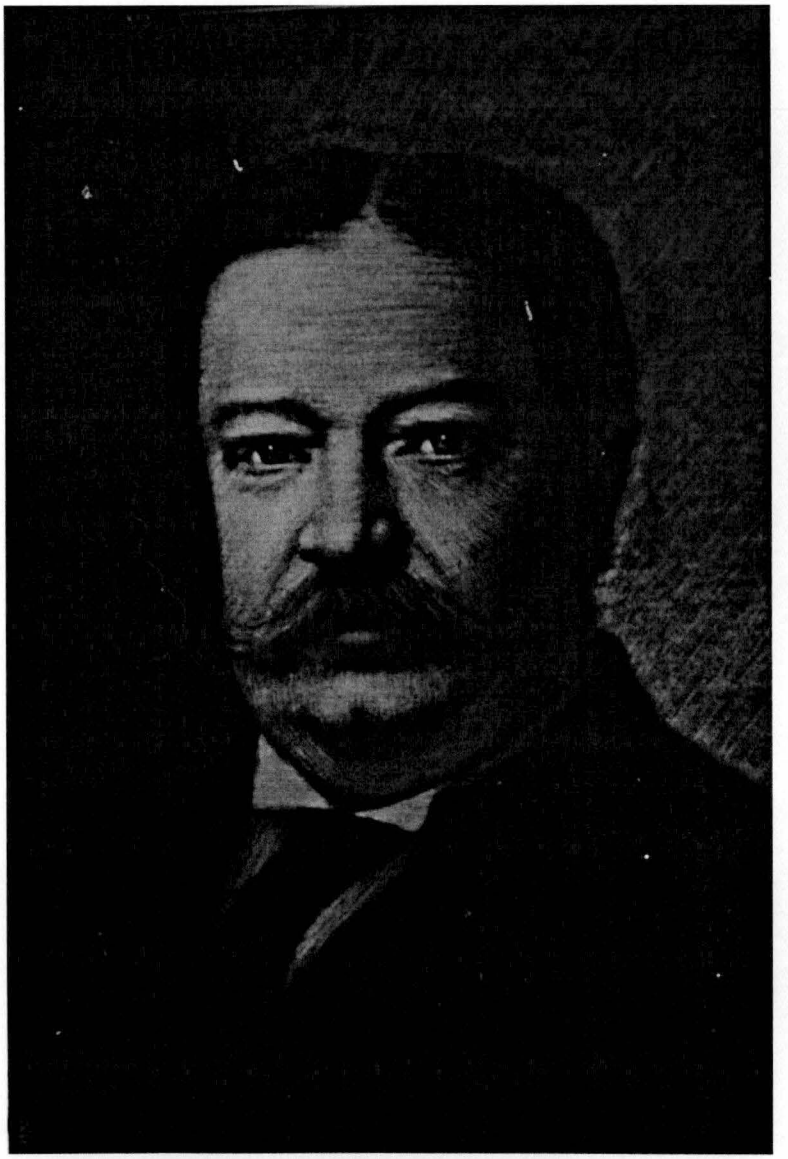


Figure 28. A self portrait painted on glass by David Povey.

Povey Bros. must have had a kiln in which the glass pieces were fired once the paint had been applied. Such a kiln would have been a fixture in most stained glass studios. However, the Probate Records do not include a listing of a kiln. There is a reference to "1 Gas Furnace Complete" valued at $200.00 (MCC 1924:PR 43). This entry probably refers to the kiln. Pieces would have been carefully fired. Overfiring or underfiring could result in discoloration of the paint or its failure to adhere to the surface of the glass.

Of course, many windows would have required little or no painting and firing. The type of windows known as "art glass" typically contained a good deal of opalescent glass which was used to provide shading and variation without the use of paint. These windows were very popular around the turn of the century, and the Poveys made many of them. Some windows might have included just a few painted pieces, such as faces or hands with the rest consisting of unpainted opalescent. Others, particularly geometric or landscaped windows, might have no paint at all and would have proceeded directly from coloring and cutting to fabrication.

Fabrication

Once the pieces had been fired, retouched and fired again, the incomplete window moved to the workshop for fabrication. The process of putting the pieces together into a finished window will be discussed in Chapter V.

CHAPTER V

THE POVEY WORKSHOP

While the artists and designers in the Povey studio were responsible for giving a window its color and shape, the glaziers and shop workers had the difficult task of making these visions a reality. The medium of stained glass requires a great deal of technical expertise to execute a finished and lasting work. A window must be able to support its own weight as well as withstand the elements because it is usually a functional part of a building. These requirements mean that a stained glass window must be fabricated with skill and intimate knowledge of the properties of glass and metal.

John Povey, the youngest Povey brother, was in charge of the Povey Bros. workshop (Figure 29). He probably had about 15 to 20 men working under him by 1905 when the new factory was built. This team worked 50 hours a week, including a part day on Saturday, and was responsible for putting together the windows designed by the artists as well as making other products like beveled glass and mirrors. This chapter will discuss the facilities in which the glaziers worked, the tools they used and the items they made.

The Povey Building

Povey Bros. operated in several rented quarters before they constructed their own factory building in 1905. Photographs of these earlier locations show them to have been typical late 19th century commercial buildings with glass storefronts, recessed entries and cast iron decorative elements. At their third location at the corner of 6th and Davis, the growing Povey operation occupied the entire second floor of a large, two bay, wood frame building (Figure 30). However, while these quarters must have served the pur-

Figure 29. A portrait of John E.G. Povey
(Oregon Historical Society #0303P035)

poses of Povey Bros., it is almost certain that none of the buildings they occupied prior to 1905 were designed to house a stained glass studio. In contrast, the Povey Building was designed specifically for Povey Bros. with all the needs of their business taken into account. Located at the corner of 5th and Flanders near Portland's Chinatown, the Povey Building was constructed as a three story brick factory building, with each floor serving specific purposes for the glass makers. Analysis of this building will help us to understand how Povey Bros. was organized and how they used this space to meet their needs.

The Povey Building was designed by Portland architect Emil Schacht and built by Hobkirk & McKenzie General Contractors, the company operated by David Povey's father-in-law. Emil Schacht was a German immigrant who arrived in Portland in 1883

Figure 30. The third Povey studio at the corner of 6th and Davis (Polly Povey Thompson Collection).

and opened his own architecture studio in 1885. He had been trained at the Polytechnic Schools in Copenhagen and Hanover where he would have received a typical Beaux Artes education. Schacht came to New York in 1874 and worked as a draftsman for six years, becoming familiar with American architectural styles like Queen Anne, Shingle and Colonial Revival. Schacht's Portland studio remained in operation for 41 years, and he designed several prominent Portland buildings including the Oriental Exhibits Building at the Lewis and Clark Exposition and the Portland Police Headquarters. He also designed a sizable number of factory buildings, of which the Povey Building is one. According to Patricia Lynn Sackett, who compiled an inventory of Schacht's work, "during the years 1905 to 1915, Schacht designed many commercial, office and industrial buildings in Portland of both load-bearing brick and reinforced concrete construction" (1990:57). These industrial buildings with their simple brick arches and classical references tended to show the influence of Louis Sullivan and the Chicago School.

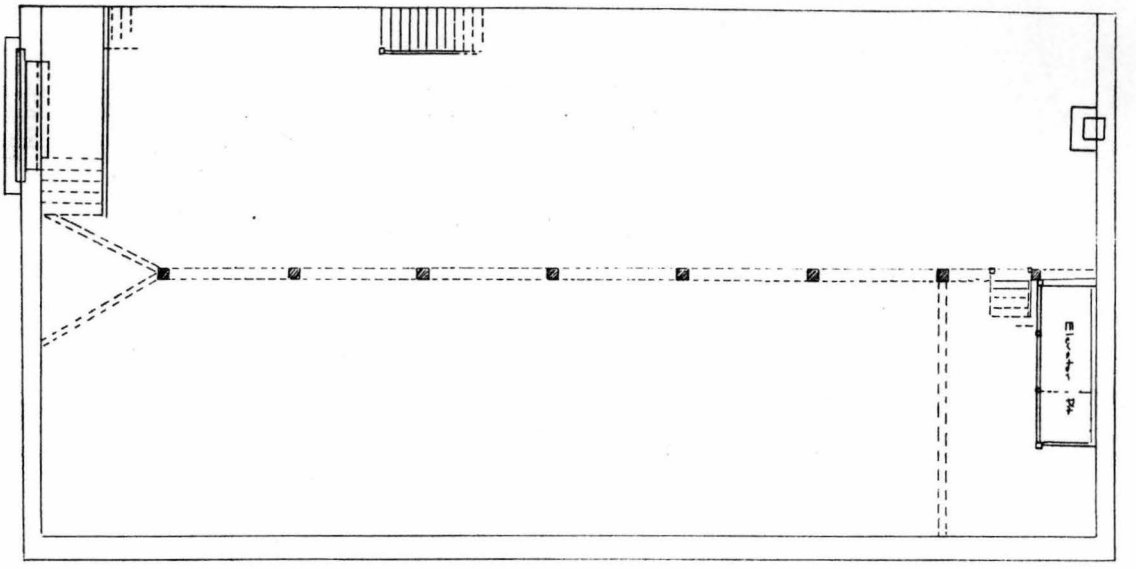
Figure 31. Historic photograph of the Povey Building (courtesty Dr. David Mooers).

Fortunately we can still observe the exterior of the Povey Building as it remains in its original location at the corner of 5th and Flanders. Few alterations have been made to the building's facade, and it looks much as it did when it was completed in 1905 (Figure 31). The Povey Building is listed in the City of Portland's Historic Resource Inventory. It is constructed of load bearing brick with an interior frame of heavy timber. The strength and structural capacity of the building is expressed on the exterior facades through the use of Doric pilasters and articulated bays. The building has a projecting brick cornice and a belt course separating the basement from the first floor. As Sackett puts it, "this building is an excellent example of Schacht's ability to define massive structural walls with classically derived detailing" (1990:60).

At the time it was constructed, the building included room for expansion, a studio with north light, and a basement with a high ceiling and large windows. Each floor was essentially a large open space with no inner walls. A row of supporting 12" by 12" posts ran down the center of the building, resting on brick foundation piers. With the exception of these posts and a small corner bathroom area on floors one through three, few other barriers divided the inner space. This openness would have provided natural light, facilitated communication between workers and allowed adequate space for large projects (Figure 32).

According to David Mooers (David Mooers personal communication 1999), son of Dymon Povey Mooers and grandson of David Povey, the building was divided into four distinct areas of operation. The basement served as the beveling shop, the first floor as the office, the second floor as the design and painting studio and the third floor as the fabrication workshop and storage area.

Light was provided to the basement by two walls filled with prismatic glass squares. These glass cubes were apparently a newly patented invention made in Chicago, and the Povey Building may have been one of the first in Portland to employ this building material (Figure 33). Polly Povey Thompson (ca. 1980s) believed that these prismatic windows were much admired and copied by architects and factory owners in the Portland area. She also stated that the glass blocks provided the natural light necessary for the difficult work of beveling. The Probate Records include a number of machines associated with glass beveling (MCC 1924:PR 43). These machines operated off a 70" drive shaft powered by a 15 horse power motor and would have occupied quite a bit of floor space. Interestingly, in the inventory, these items are listed under "Shop," suggesting that they may have been located on the third floor rather than in the basement. However, the records are not clear enough to indicate conclusively the location of this equipment.



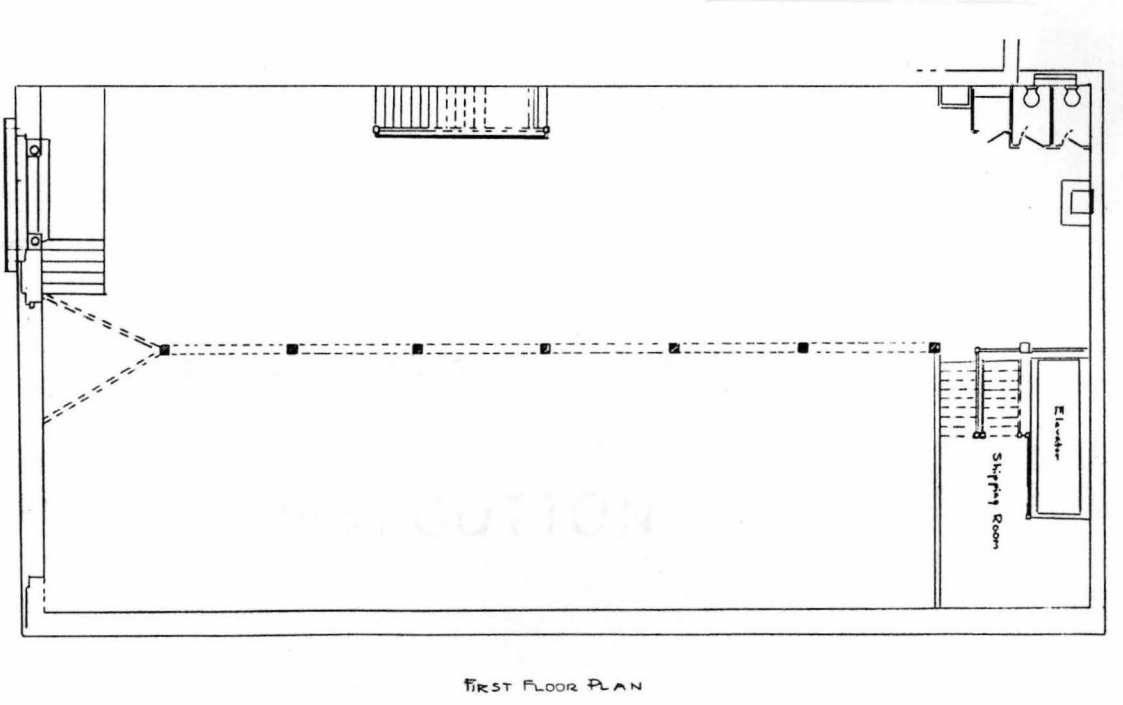
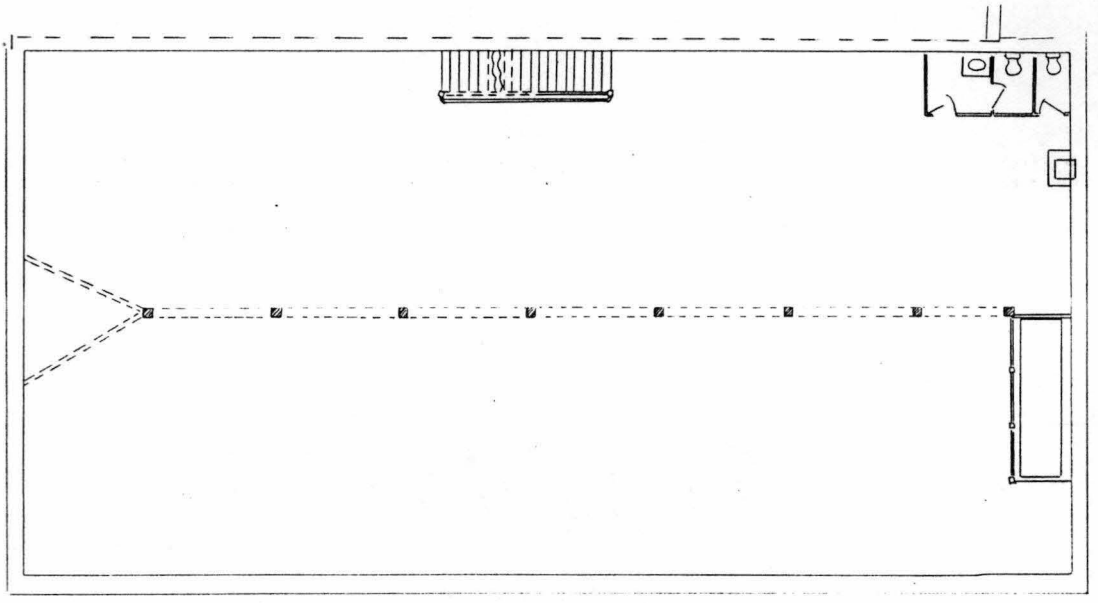
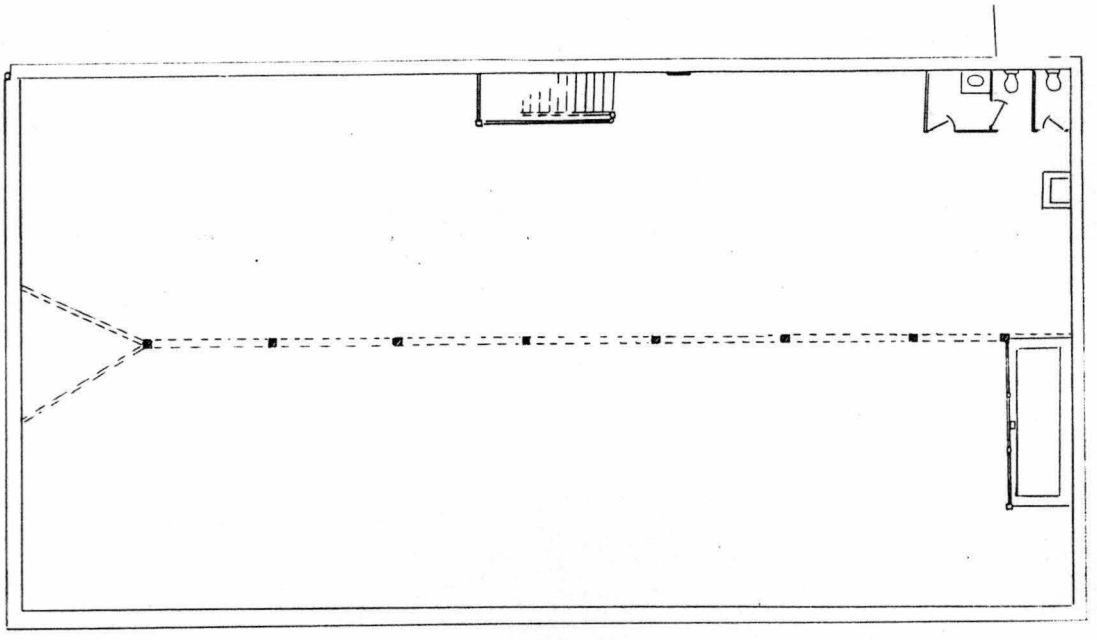


Figure 32. Floor plans for the Povey Building, designed in 1905 by Emil Schacht.



SECOND FLOOR PLAN



THIRD FLOOR PLAN

Figure 32. Continued

Figure 33. Historic photo of employees outside the Povey Building. Note the prismatic glass blocks on the right (Oregon Historical Society #76922).

The main entrance to the building faces 5th Street. The recessed entry with its arched transom lies up a few steps from the street. The visitor or client would have entered this door and emerged in a large office space, containing the business operations of Povey Bros. This floor was likely furnished with typical office equipment such as the desks, chairs and tables listed in the Probate Records. Other office fixtures included a typewriter, an adding machine and a Chicago safe, as well as stationary, time books and two spittoons (MCC 1924:PR 37-38). It is possible that this floor may have also served as a sort of showroom, and any sample windows probably would have been kept in this area. At the back of the space, a small area was partitioned off as a shipping room. Windows would have been packaged for travel in this room. Stairs from the basement

led up into the shipping room, and an elevator was installed along the back wall, connecting all four floors. The freight entrance stairs opened off the shipping room onto Flanders Street.

The second floor was accessible by stairs or elevator. Like the basement and first floor it was a large open space, broken only by the line of posts down the middle of the room. The windows surrounding the room would have supplied natural light critical for selecting glass colors and painting glass. As the design center for Povey Bros., this floor was the scene of the design process described in Chapter IV. The Probate Records list a number of easels, tables, boards and trays on the studio floor, as well as a painter's cabinet and painter's closet (MCC 1924:PR 39). The studio also contained a dark curtain and a drawing board partition (MCC 1924:PR 39).

Like the second floor, the third floor of the Povey Building could be reached by the stairs or elevator. It also comprised a large open space and was flooded by natural light. As the workshop area, this floor would have been the hub for window fabrication. Povey Bros. products made their way gradually up the building, beveled pieces being produced in the basement, contracts being secured on the first floor, and window designs laid out on the second floor, to finally be finished on the top floor and sent back down via the elevator to shipping. The third floor would have contained many tables, some large enough to accommodate the enormous church windows produced by Povey Bros. The inventory in the Probate Records lists 13 tables, three of them new, in the shop (MCC 1924:PR 39). Since this space was also used for glass storage, there were six racks, of various types, on this floor (MCC 1924:PR 39).

Three photographs exist showing the interior of the Povey studio. Unfortunately these photos are not dated, nor is it known at which location they were taken. However, one photograph (Figure 34) depicts what appears to be the interior of the office floor. A

table and a heating stove lie in the foreground. In the background, two men sit behind a desk. The wall behind them contains bookshelves, a framed mirror and a portrait of the Madonna with child. The second photograph shows what appears to be the interior of the design room (Figure 35). Large sheets of paper, probably cartoons or working drawings are stretched out on a table. A "T" square can be seen on top of the paper. The walls are covered with what appear to be either watercolor paintings or finished windows. In the corner of the print, four people cluster around a drawing on another table. The group includes one woman, maybe Emma Povey or one of the young woman artists later hired by Povey Bros. A final interior shot shows what must be the Povey Bros. workshop (Figure 36). Seven large tables are visible, and the table in the foreground clearly holds pieces of cut glass and a stack of cames. At least 13 men can be seen, most of them

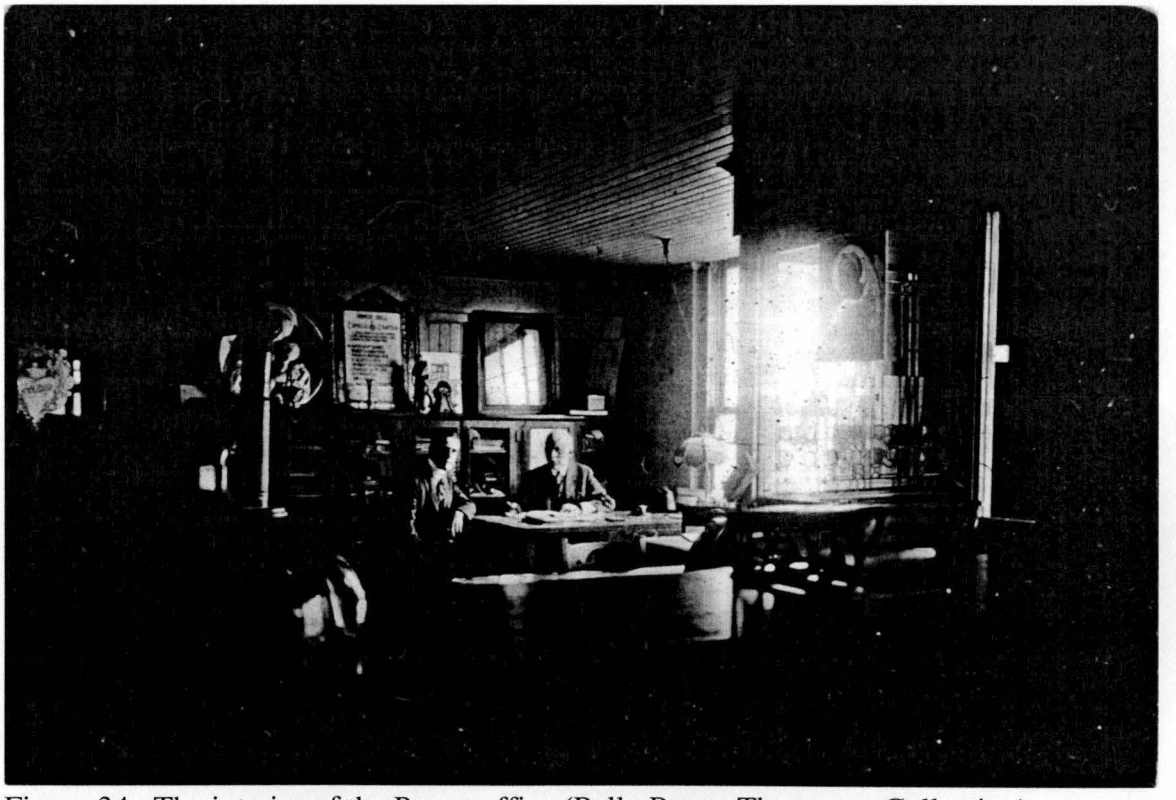


Figure 34. The interior of the Povey office (Polly Povey Thompson Collection).

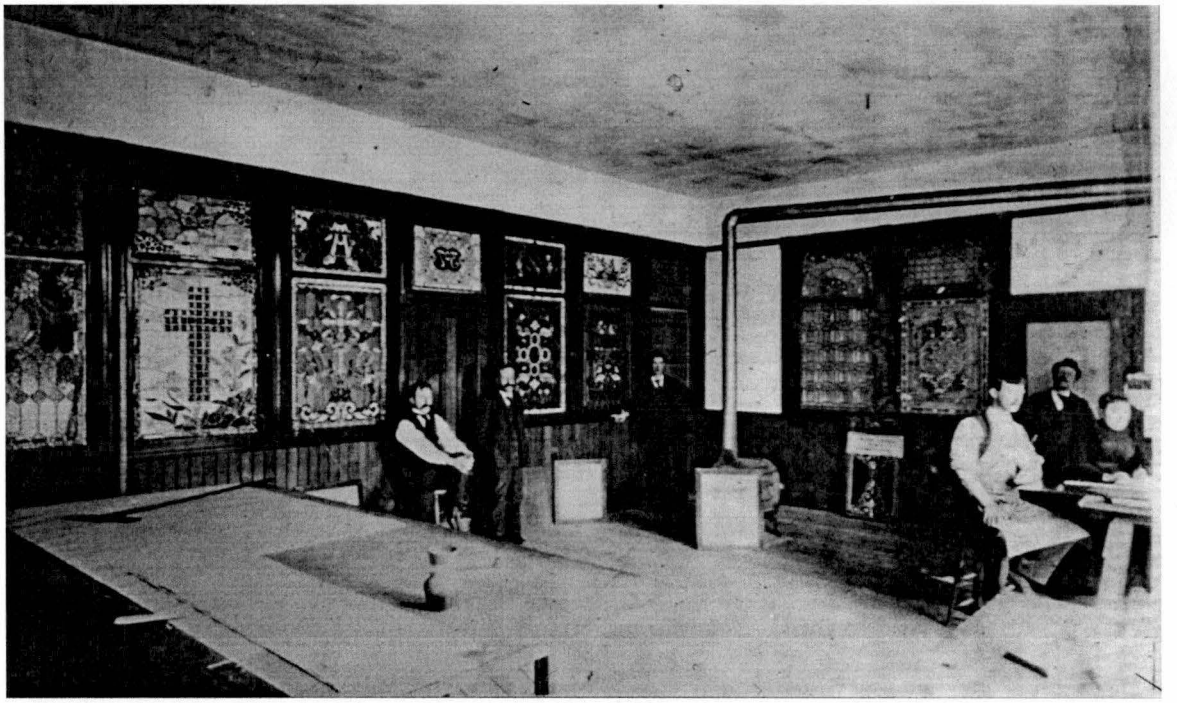


Figure 35. Interior of the design studio. Note artists working on the right (Oregon Historical Society #76923).

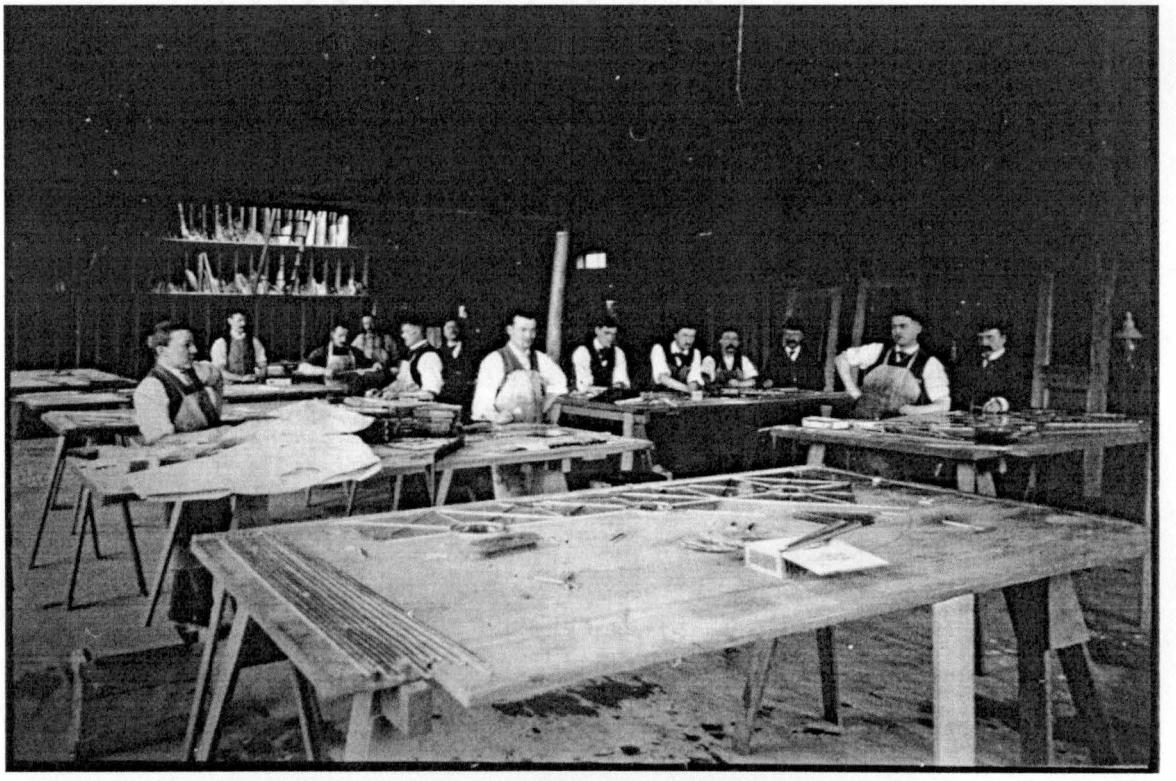


Figure 36. Interior of the Povey workshop (courtesty Dr. David Mooers).

wearing canvas work aprons. In the background, wall racks hold sheets of glass, concurring with David Mooers' statement that the workshop was also used for storage. Several unfinished door frames stand along the side wall apparently waiting for stained glass to be installed. While the provenience of these photographs is somewhat unclear, they do serve to give us some idea of what the inside of the Povey studio must have looked like.

The Fabrication Process

Workers of the third floor of the Povey Building received working drawings and painted pieces of glass from the artists on the second floor. It was the job of these shop workers to put the pieces together in the way envisioned by the designer and to make it all hold together securely. This part of the studio was managed by John Povey, the youngest Povey brother, who was seen as the "craftsman" of the three and was an experienced metal worker and glazier. According to Polly Povey Thompson, "John was in charge of glazing, mirror making, the workroom, beveling, firing painted work, bending glass, and sandblasting" (ca. 1980s).

Under the direction of John Povey, the shopworkers carefully fastened each piece of cut glass together with metal cames. Essentially, they used the same stained glass process practiced since medieval times. While descriptions of this process can be found in other works, it is important that this information be included here to complete our understanding of the technical processes Povey Bros. used in window manufacture. Once again the words of Dymon Povey Mooers will be included to provide a first hand account of window fabrication at Povey Bros.

Window Layout and Leading

> The pieces are put on the cut-line or working drawing and the leading begins. Two laths are nailed at right angles in the corner of the work

> bench and two binding leads are laid along side them. The piece of glass belonging in the corner of the window at the glazier's left hand is inserted in the binding lead and another lead fitted to its free side. The next piece of glass is fitted to this and so on until the window is complete, a mosaic of pieces of glass separated yet held together by the leads. The leads are soldered at the joints, then soldered on the reserve side. (It must not be thought that the window loses in beauty by the presence of these black lines. It gains enormously; it brings out the color and brilliance of the glass). (Mooers ca. 1970s)

Dymon Povey Mooers gives a clear and concise description of how windows were pieced together at Povey Bros. A large table was used to hold the work in progress. The laths nailed to the table held the window square while it was being put together. Laying the window over the working drawing ensured that every piece matched the design and that the overall size of the window was exactly accurate. Once the window was completely laid out, the joints in the metal cames were soldered together. The lead or zinc was brushed with flux to clean the surface and ensure a good bond. Then solder, made of lead and tin, would be melted onto the joint with a soldering iron. A skilled hand was necessary to apply the solder smoothly and prevent lumps or jagged edges. The Probate Records show that Povey Bros. owned two "Iron Stoves - Gasoline Solder" (MCC 1924:PR 39) as well as three other "Gas Stoves" (MCC 1924:PR 40) and that these stoves were located in the shop. Lacking the electric, plug-in soldering irons that we have today, the shop workers would have heated their irons to the appropriate temperature on these stoves. Regulating their heat and keeping them warm must have been somewhat difficult. It was necessary to solder both sides of the window to make the joints strong and solid.

The cames used to make these windows probably came from a number of different sources. According to Polly Povey Thompson (ca. 1980s), Povey Bros. ordered cames from a variety of manufacturers in England, Europe and the United States. How-

ever, the Probate Records list several items related to lead came manufacture, suggesting that the Poveys also milled some of their own cames in the shop. The Probate Records include "1 Lead Mill," "1 Gas Lead Melter" and "Lead Molds and Pots" (MCC 1924:PR 40 & 43). It is difficult to quantify how much of their came stock the Poveys manufactured and why they chose to make some of their own leads. Possibly the advent of World War I disrupted lead supplies, making it necessary for them to melt down and mill their own cames. Alternatively, the Poveys might have made cames with special profiles or sizes that they desired for their work. As mentioned previously, lead lines were critical to Povey designs, and they often used cames of different shapes and sizes.

The Probate inventory includes 1,334 pounds of lead came and 420 pounds of zinc metal (MCC 1924:PR 36). Zinc cames, which are stronger and stiffer than lead, were generally used in rectilinear Prairie type designs, or for large windows that required extra strength. The Johnson Hall skylight at the University of Oregon was made with zinc cames. These windows are geometric in design and quite large. Their horizontal position would have also caused additional stress on the stained glass panels, making zinc a good choice for these windows. The Poveys may have also sometimes used other metals like bronze or brass; quantities of brass metal are listed in the inventory, but they are not specified as cames (MCC 1924:PR 36). Some very interesting metal work can be seen in windows owned by the Mooers family of Seattle, descendants of David Povey (Figure 37). The Mooers' window features birds in flight across an opalescent landscape scene. Rather than being painted like the birds in the Deepwood Museum in Salem, these birds are crafted of bronze sheet metal, shaped in a technique known as repoussé and skillfully soldered onto the glass. The dark metal forms the wings and tails, while cut outs allow the white glass to show through.

Cames and metalwork might have been treated with metal finishes, or patinas. Lead naturally turns dark gray with time, while zinc develops a silvery white coat as it

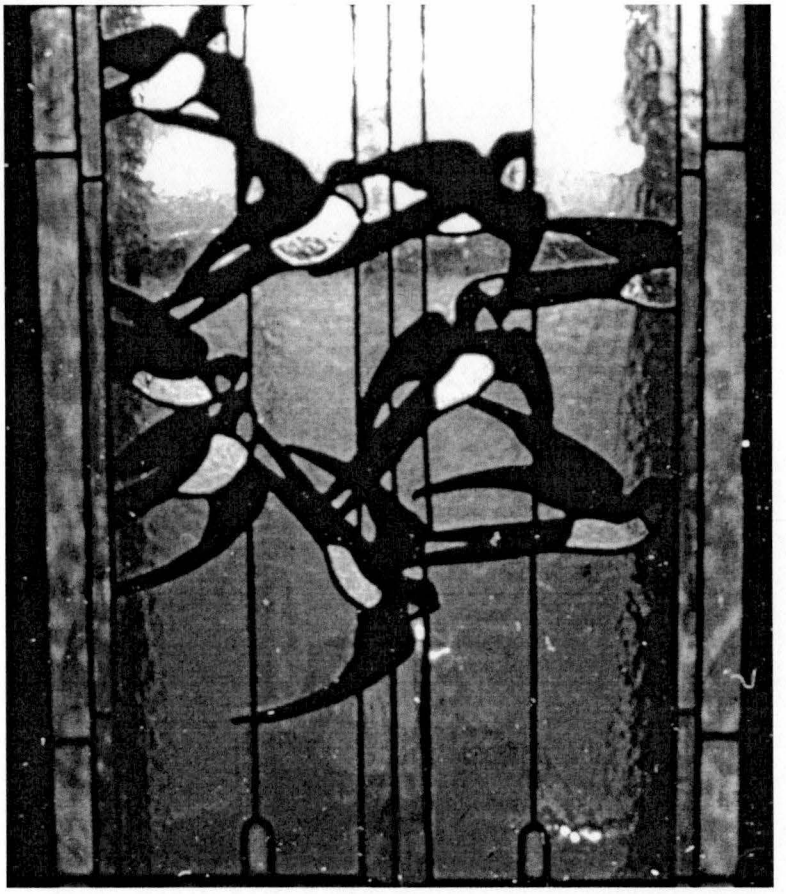


Figure 37. Sheet metal birds applied to glass (Polly Povey Thompson Collection).

oxidizes. Metal finishes would have been used to speed up this process, or to give the metals a different appearance from that which they would normally develop. Chemical patinas were invented by French scientists in the mid 1800s, and they were quite common by the end of the 19th century. Artificial patinas were frequently used on statuary and on building hardware. They were also sometimes used to color the cames in stained glass windows. The probate inventory contains a number of items which appear to be artificial patinas. While these "Bronze Liquids" are listed with lamp shade materials, they probably would have also been used to patinize full size windows. These metallic finishes would have been brushed onto the cames once the window was fabricated. Some studios applied patinas through electroplating, running an electric current through the cames to

aid in bonding the patina chemicals. No items associated with electroplating can be found in the inventory, but it is possible that the Poveys used this method. The stained glass skylight from Johnson Hall has cames that were treated with an artificial patina. The zinc cames were brushed, on the front side only, with a golden bronze colored finish.

Waterproofing and Support Bars

> Now the window is ready for the cementing or final process. A water proof cement composed of whiting, linseed oil, turpentine and dryer is applied and worked under the lead with a stiff brush, on both sides. Then it is polished or cleaned with whiting, time is allowed for the cement to dry. Iron bands are soldered on across the window to strengthen it (if it is large) and it is ready for final inspection and setting in its enclosure. It should be water proof-proof against windstorms blowing it in, frail as it may look will probably survive long after the rest of the building has fallen to ruin. The fact of its permanence accounts for the many example left from the 12th century and on. (Mooers ca. 1970s)

During the final steps of fabrication, the window was made ready to be installed in its opening. Applying waterproofing, a process also called "smudging," sealed the window against the elements and prevented water and wind from penetrating the gaps between glass and came. The putty also greatly contributes to the strength and stability of the glass and metal ensemble. Thirteen dollars worth of smudging brushes are included in the probate inventory (MCC 1924:PR 43). No waterproofing compounds are listed, so it is possible that the Poveys mixed their own as needed.

As Dymon Mooers mentions, once the window was smudged and dried, support bars were installed. Small windows were generally light enough to be self supporting. Larger windows, however, especially the massive windows made for churches, required extra reinforcement. The weight of the glass and lead could cause the soft metal to bend and bow. Iron or steel bars were cut to length and soldered across the back of the win-

dow. Care was taken to integrate these bars into the design so that they were not highly visible to the viewer. They might be hidden behind a straight lead line, or masked by a darker portion of glass. The Poveys appear to have used mainly flat bands as support bars. Sometimes they also used round metal rods which were tied onto the cames with copper wire. The flat bar method was generally stronger as copper wire could be susceptible to breaking.

Once a window was complete, the Poveys carefully packaged it for shipping in the first floor shipping room. Windows might have been transported by train, boat or, in the later years, truck. According to Polly Povey Thompson (ca. 1980s), Povey Bros. also assumed responsibility for installation of the window. One of the brothers or another worker would travel with the window and see that it was carefully set into its frame.

Other Products

Povey Bros. was not limited to making stained glass window for churches and homes. While making mosaic stained glass was their most important work, they also manufactured a variety of other glass products including mirrors, beveled plate glass, sandblasted windows, lampshades and furniture. Many of these other types of glass work were more affordable to the average person. Expanding their product line in this way enabled the Poveys to appeal to a wider segment of the Northwest market.

Beveled Glass

Beveled glass was produced in the basement beveling shop at 5th and Flanders. Despite its simple appearance, beveled glass is quite difficult to make and required a good deal of skill to manufacture. Pieces of plate glass were cut to size, then the edges were slowly ground to achieve the desired angle. Povey Bros. was making beveled glass

as early as 1891 (*Polk City Directory*). Small pieces of beveled glass were often used in conjunction with colored glass in Povey windows. Beveled glass might have also been used in the clear leaded windows popular in Tudor or English cottage style dwellings. According to Hill et al., beveled glass was particularly popular in the Pacific Northwest "where lack of constant sunlight is a problem" (1976:41). While this assertion was probably not arrived at through scientific study, levels of available natural light do play an important part in stained glass design.

The intricately beveled windows at the Judge Winters House in Portland are made entirely of clear glass (Figure 38). However, despite the absence of color, these windows have a richly textured appearance. The detailed leading and the sculptural patterns created by the bevels emphasize the central fleur-de-lis and "W" crest. As Louis Duthie, early 20th century glass maker, pointed out, beveling is a subtle and restrictive technique

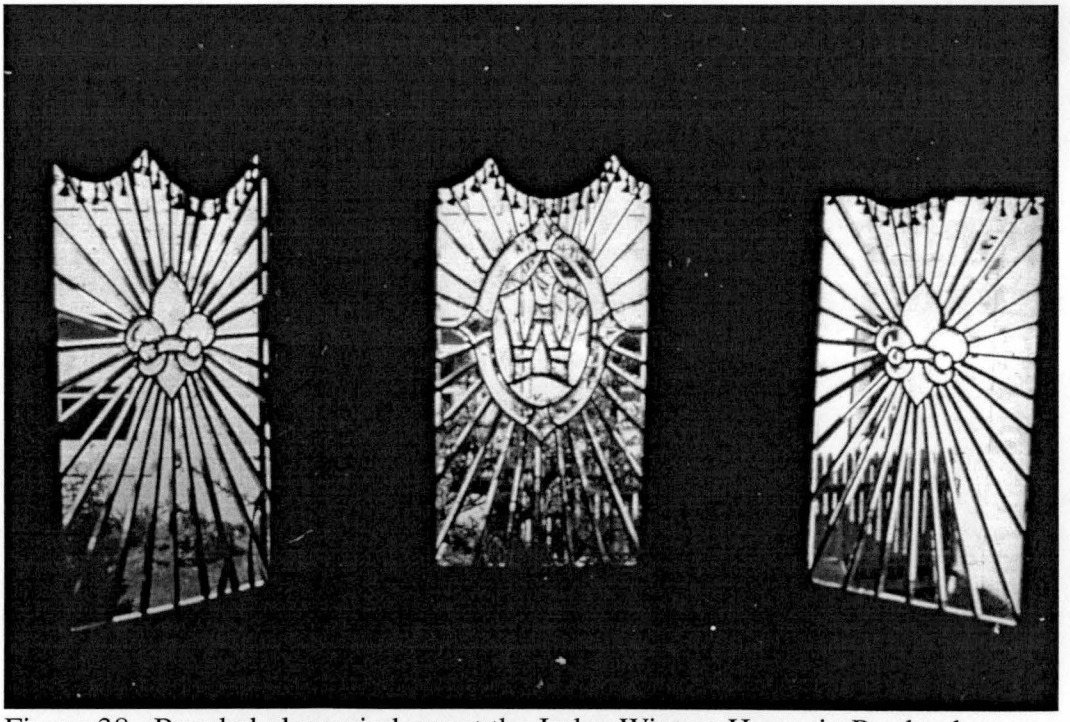


Figure 38. Beveled glass windows at the Judge Winters House in Portland (Polly Povey Thompson Collection).

which calls for careful design. "Its effect on the clear plate is due entirely to the contrast produced by the angle which the cut forms with the surface of the glass" (Duthie 1982:171).

Beveled glass and other types of cut glass were traditionally handground on a flat wheel, "so that it refracts light, creating colored prisms" (Hill et al. 1976:41). In 1905, a beveled plate glass machine was invented, increasing the availability of beveled glass and making it more popular for use in stained glass. This machine pressed a beveled edge into plate glass as it cooled, making grinding and polishing unnecessary (Duthie 1982:254). This type of machine would only have been used by glass manufacturers, and Povey Bros. continued to use the more traditional techniques and machinery, although they would have had access to other improvements patented in the early 1900s. The Probate Records show that they had a number of polishing machines running off a drive shaft, including two "Roughing Machines," one "Emery Machine," one "Upright Smoothing Machine" and one "Rouge Machine" (MCC 1924:PR 43). Typically, pieces of plate glass to be beveled were first cut on a horizontal wheel made of cast iron. Wet sand was applied to the spinning wheel, providing the abrasive agent. Once the angled cut had been made on this first wheel, the bevel was smoothed on a series of less abrasive wheels, typically made of wood, and finished with rouge to a fine polish (Duthie 1982:166). Different sized wheels were necessary for different cuts; a number of these wheels are included in the inventory (MCC 1924:PR 43). Smaller pieces of glass would be hand held by the workman while they were beveled. Larger pieces were probably suspended from a counterbalanced arm attached to the ceiling or to special tables.

The Povey brothers must have been quite skilled in producing beveled glass. An early photograph (Figure 39) shows the Povey workmen posed behind an enormous piece of beveled glass. The glass measured 26" by 158" and was inscribed "Povey Bros. Glass

Figure 39. Historic photo of Povey employees with one of the largest pieces of beveled glass ever made. George, John and David Povey are in the back row (Polly Povey Thompson).

Co. Portland, Oregon." The piece is also dated and signed by John Povey, who stands in the center of the second row. Unfortunately the date is partially obscured, and only a May __, 1__5 is visible. Although Polly Povey Thompson believed this picture dated to 1905, the presence of George Povey leads to the conclusion that it actually dates to 1895, as George had died by February 1905. At the time it was made, the piece was reportedly one of the two largest piece of beveled plate glass ever produced in the United States (Thompson ca. 1980s).

Mirrors

Povey Bros. was also advertising mirrors by 1891 (*Polk City Directory*). Mirrors were a popular and affordable element for interior decoration. They might have been

simply framed or included in pieces of furniture or built in cabinets. Mirror making was a common pursuit for stained glass studios, and in Portland the Pacific Art Glass Works and Frederick H. Wagner also made mirrors (*Polk City Directories*). The Oregon Mirror and Beveling Works opened on Davis Street in c. 1918, advertising "Manufacturers Plain and Beveled Mirrors, Polished Edged Plate Glass, Sand Blasting and Chipping, Mirrors Re-silvered, Plate Glass for Windshields" (*Polk City Directory* 1918:1502).

Mirrors were made with pieces of clear plate glass. They might be beveled around the edges or left plain. The Poveys would have used the prevalent mirror silvering technique developed around 1840. The glass was first carefully cleaned to ensure that no dirt or grease would mar the silvering. Then the glass was laid on a special table, heated from below with warm water pipes. A mixture of silver nitrate and Rochelle salts (potassio-tartarate of soda) was poured evenly across the glass. The addition of the salts to the silver nitrate and the heat from the table caused the silver to precipitate onto the glass in metallic form. The excess solution was washed away, the glass was carefully dried and a protective coating of lacquer and/or paint was applied to the back of the silver (Duthie 1982:211-13).

Sandblasted Panes

The Poveys probably did a fairly brisk trade in sandblasted windows. These windows were quite popular during the late 19th and early 20th centuries, and they were less expensive than traditional mosaic windows. All of the sandblasting would have been done in the shop. The Probate Records show that the shop contained 50 different sandblast plates, valued at $100 (MCC 1924:PR 41). These plates were made of both metal and glass and came in a variety of sizes and styles. For the most part the subjects are drawn from the natural world; flowers, ferns, deer and horses appear prominently on the

list. Several maritime themes are also listed, including a "Full Rigged Ship," a "Fisher Boat" and a "Battleship Fleet." Such sea faring subjects might have been particular popular in a shipping town such as Portland. A few of the sandblast plates are for decorative borders. A company or family name might then have been inscribed in the center. It is not clear if the Poveys made all of these sandblast plates or if they were ordered from a separate manufacturer. Plates might have been cut or etched with acid to form designs.

The sandblast plates would be used as stencils to apply the designs to the glass. The plates might be clamped directly to the glass during the sandblasting process, or they might be used to apply a coating of rubber, glue or paper to the glass. These removable coatings served to protect the clear portions of the glass during sandblasting. The Probate Records do not include a sandblast machine, but such machines were common at the time and could have operated off the central drive shaft. Sandblasting typically occurred either in a closed machine or a sealed room to prevent the inhalation of glass dust and sand particles. The flying sand might be powered by compressed air, steam, centrifugal force, atmospheric pressure or even gravity. It was necessary to use "sharp" sand, that is sand with sharp edges rather than rounded beach or river sand, to cut into the glass. Once sandblasting was complete, the stencil could be removed and the plate polished or further finished (Duthie 1982:175-192).

Stained Glass Lampshades

In addition to the many windows they produced, the Poveys also produced stained glass lampshades. Stained glass lampshades were quite popular at the turn of the century and were produced by many American stained glass makers. Making lampshades was one way to use some of the many small remnants of glass resulting from stained glass window manufacture. Lampshades were built up on a wooden mold to help them hold

their shape until all the pieces could be soldered together. According to Polly Povey Thompson (ca. 1980s), John Povey was responsible for making these molds, and the Probate Records do include 10 lampshade blocks in a variety of sizes (MCC 1924:PR 42). John would have also constructed larger molds for the curved parts of skylights and domes, but none of these are listed in the Probate Records. The inventory also refers to more than 70 "Lamp Shade Panels" (MCC 1924:PR 27). These panels are listed under glass and are categorized as "Bent Opal" so it appears these were pieces of bent opalescent glass meant for use in shades. A few more lamp related items are listed in the "Miscellaneous" category: a number of "Panel Lamp Shade Frames" and 150 pounds of "Assorted Lamp Shade Metal" (MCC 1924:PR 29). The panel lamp shade frames may have been molds for forming the bent glass just mentioned. The assorted lamp shade metal may refer to lamp bases and shade holders. Stained glass lampshades typically rested on metal bases, sometimes molded into sculptural shapes such as trees.

The lampshades themselves were usually formed by a different method than that used to make stained glass windows. The edges of the small pieces of flat glass, or larger segments of bent glass, would each be wrapped in thin strips of metal, called copper foil. Then, piece by piece, the segments would be laid up onto the wooden mold and soldered together, the copper foil providing the metal necessary to hold the solder. Once all the pieces had been soldered, the shade could be removed from the mold and installed onto a lamp base. Descendants of the Povey family own two such lamps (Figure 40). One lamp is composed primarily of geometric squares of blue opalescent with a border of light pink flowers surrounding an interesting uneven rim. The second lamp follows the same design but was made in shades of cream and dark pink. Both lampshades rest on identical metal bases. The bases are very simple in design and appear to be bronze or bronze finished. As mentioned previously, the Probate Records include a number of liquid metallic fin-

ishes, including aluminum, gold bronze, brass and green gold, which could have been used to create various metallic effects (MCC 1924:PR 36). These two lamps are the only known examples of stained glass shades made by Povey Bros. Others certainly exist, but they have yet to be identified.

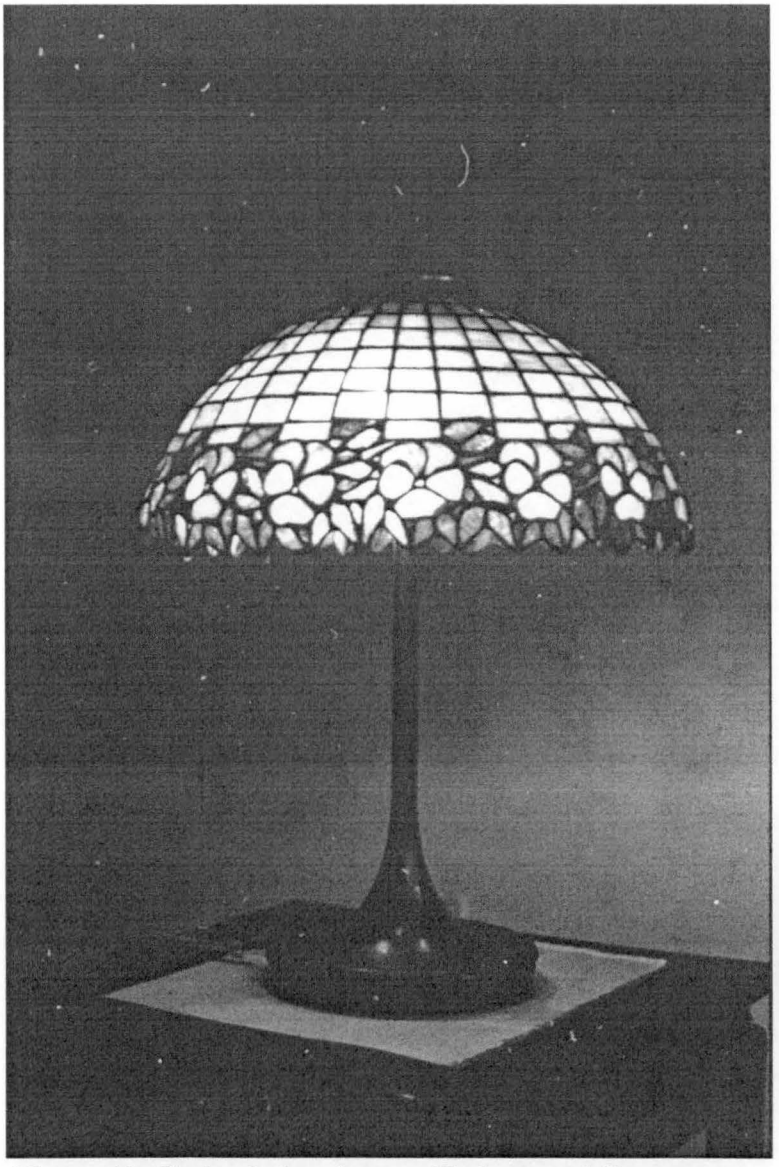


Figure 40. Stained glass lamp with dogwood flowers (Polly Povey Thompson Collection).

Furniture

Lampshades were not the only smaller stained glass works manufactured by Povey Bros. They also made small stained glass inserts for pieces of furniture and cabinets. Such stained glass was generally intended to complement the style of the furniture or building interior, and was usually abstract or floral in design. It could be built with lead cames or by the copper foil method used for lampshades. Stained glass was as popular for interiors as it was for exteriors, and from the 1880s into the 1920s, stained glass could be found in built in cabinets, around fireplaces and in free standing furniture (Wilson 1986:15).

Unfortunately very few pieces of furniture containing Povey glass have been identified. Figure 41 shows a small "music cabinet" owned by descendants of George Povey. The flat topped cabinet is fronted by two doors, one of which contains a stained glass panel. Like the cabinet, the stained glass is Arts and Crafts or Mission in intent, and it uses subtle colors and a sort of abstract flower form. The wood appears to be oak, darkly stained or fumed. It is unclear if Povey Bros. was involved in the manufacture of the wood cabinet frames as well as the stained glass. The Probate Record inventory does not include many wood working tools, suggesting that the Poveys purchased the wood pieces from another manufacturer and then installed their stained glass or sold their pieces to a furniture maker.

Repair Work

In addition to all the creative work done by Povey Bros., they also reglazed and repaired older windows for churches (Thompson ca. 1980s). Churches often contain windows by a variety of different stained glass studios, dating to various times. Many

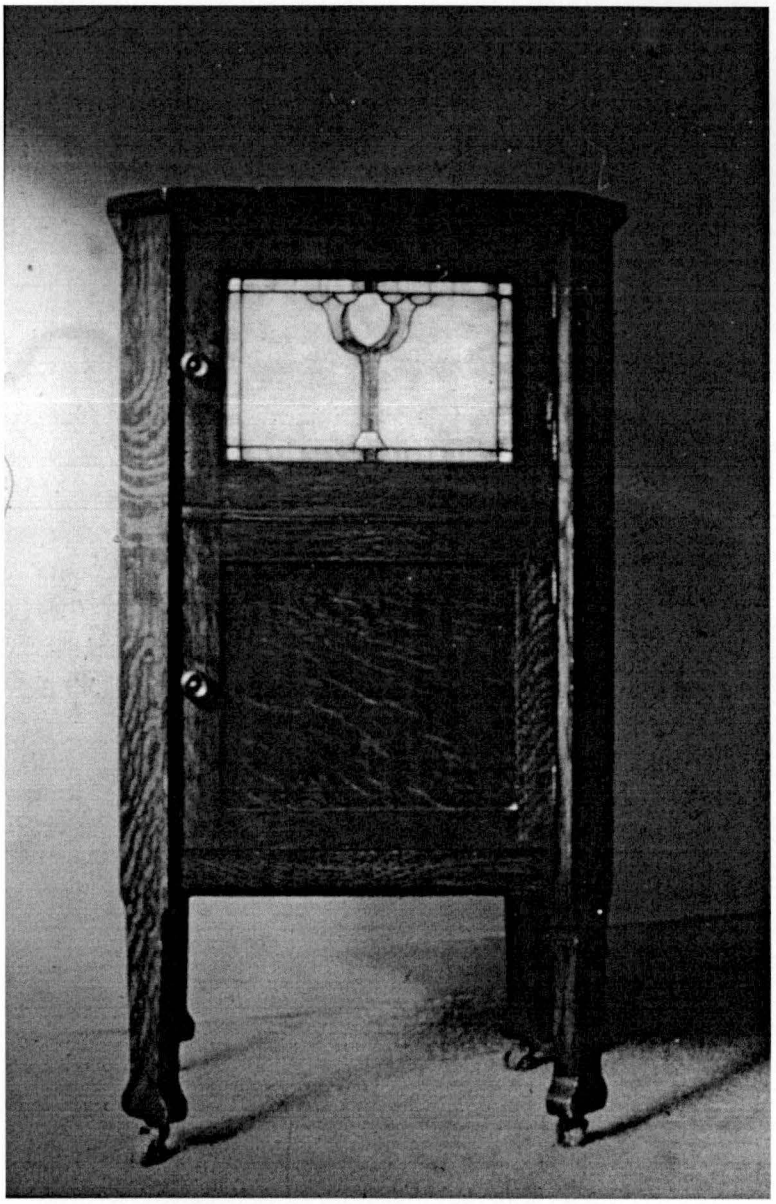


Figure 41. Small music cabinet with Povey glass (Polly Povey Thompson Collection).

European made windows were imported beginning in the Gothic Revival and continuing into the early 20th century. All of the stained glass found in Portland area churches before the arrival of the Povey Bros. would have been imported, some from Europe, some from the Eastern United States. As windows age, they often need to be repaired, or

sudden accidents can lead to broken panes which must be replaced. The Poveys would have removed the window to be repaired from its building, transported it to their shop, and repaired the broken glass or sagging cames. During this time period, people did not think of restoration the way we do today, although the work of Viollet-le-Duc in France had begun to focus some attention on the need to preserve the character of ancient stained glass. As no records exist identifying windows that the Povey Bros. repaired, it is difficult to ascertain how they went about making repairs and how strictly they adhered to the original design and materials of an older window.

The next chapter will look at today's concept of stained glass restoration as it now applies to Povey Bros. Their windows are reaching an age where they are beginning to require repair and restoration. Most preservationist agree that repairs to stained glass windows should be made with the utmost care and respect for the original intentions of the artist. A look at windows made by Povey Bros. for the First Christian Church in Eugene will provide a context for discussion of how this preservation goal can best be accomplished.

CHAPTER VI

PRESERVING POVEY GLASS

So far, this thesis has focused on the operations of the Povey Bros. studio and how the Poveys designed and made stained glass windows during the time period 1888 to 1929. At this point, I will jump ahead to the present to see how Povey windows are faring approximately 75 to 110 years after they were first installed. Understanding how Povey windows were conceptualized and manufactured will help to identify and evaluate the challenges they are facing with the passage of time. Dealing with these preservation issues now will help to ensure that Povey windows remain a part of the northwest's architectural surroundings for many years to come.

The State of Povey Windows

Povey windows were very carefully designed and executed. However, like all building materials, stained glass is susceptible to the ravages of time, weather, deferred maintenance and vandalism. At this point in time, the very end of the 20th century, Povey windows can be exhibiting many of the problems common to historic American stained glass in general. These problems include broken and cracked glass, failing paints, loose panes due to worn out putty, and sagging and bowing. Of course, difficulties like these primarily apply to windows that are still in place. While these problems are significant, windows which are still in situ, or which are being re-used in a thoughtful context, are much more fortunate than the many Povey windows which have been lost or destroyed over the years (Figure 42).

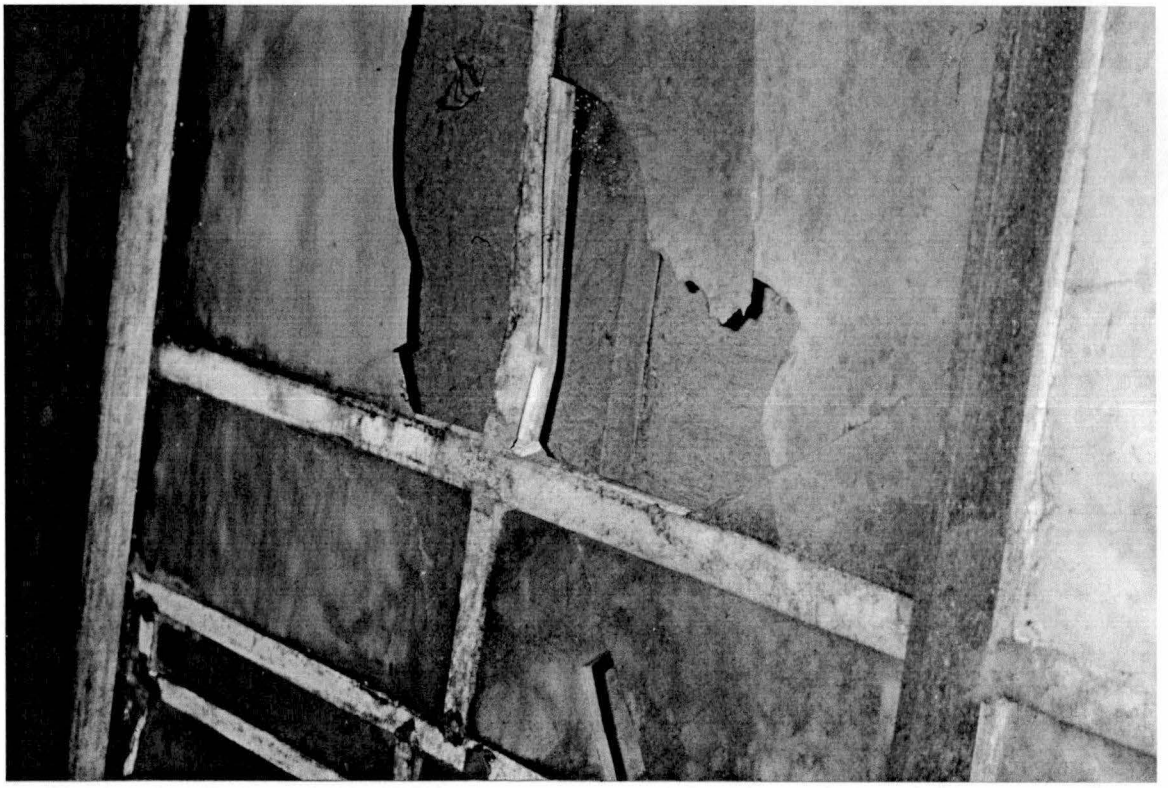


Figure 42. These Povey windows were removed from Johnson Hall at the University of Oregon and stored, unboxed, in a leaky warehouse for many years.

During the post war period of urban renewal which began in the 1950s and continued through the 1960s, historic architecture was devalued, and historic buildings were often destroyed to make way for new developments or transportation projects. Like most other American cities, Portland, home to a high concentration of Povey windows, went through this redevelopment phase, and many late 19th and early 20th century buildings were destroyed. Fortunately, compared to many other cities, Portland retained much of its historic downtown and residential neighborhoods. Also fortunate for Portland was the presence of two dedicated preservationists, Jerry Bosco and Ben Milligan. These two men salvaged a great many architectural elements from historic buildings that were slated for demolition. In addition to doors, cornices and brackets, they saved many stained glass windows. Both Bosco and Milligan made stained glass themselves, so they were

particularly interested in this item. They saved many Povey windows and added them to their collection. Unfortunately, the two men have passed away, but the Bosco Milligan Foundation, named in their honor, carries on the work of preserving these unique architectural antiques. The collection currently includes a sizable number of Povey windows. Hopefully, some of these windows will be displayed when the foundation erects its planned museum.

The First Christian Church in Eugene, Oregon - A Preservation Case Study

In order to clearly illustrate the preservation issues pertinent to Povey glass, this chapter will focus on a case study of the First Christian Church in Eugene, Oregon. I will describe each of the steps necessary to assess and preserve stained glass by conducting a sort of mini-assessment of this church. Full scale evaluations of stained glass windows are known as "condition assessments," a process described in detail by stained glass restorer Julie Sloan in her book *Conservation of Stained Glass in America* (1993). These condition assessments include background on the windows' history, an in-depth evaluation of current conditions and recommendations for repair or preservation. While this chapter will not be a full blown condition assessment, which would include descriptions of each window, it will give concrete examples of problem types and possible solutions.

Condition assessments are usually conducted by a professional stained glass restorer. However, many churches and homeowners may not have the funds necessary to employ a professional glass artist to complete an entire restoration project. It may be necessary for the property owners to prioritize preservation needs. Owners may want to consider conducting some of the initial work of conducting an assessment themselves. While any hands-on repair to stained glass should be conducted by a professional, preferably one with experience in restoring historic stained glass, building owners can ad-

equately perform much of the assessment work. Conducting an assessment, identifying which windows are the most important and which need the most work, can help the owner to prioritize their restoration goals.

This chapter will provide a basic guideline for conducting a condition assessment. I also recommend that owners read Julie Sloan's book and some of the other available literature on stained glass preservation, particularly *Stained Glass in Houses of Worship* by Rolf Achilles and Neal A. Vogel (1993) and *Conservation and Restoration of Stained Glass: An Owner's Guide* which is put out by The Census of Stained Glass Windows in America (1988). Both these texts provide complete and informative guides for stained glass amateurs.

The First Christian Church provides an interesting example for evaluating the current status of Povey windows. The church, located in downtown Eugene, was built in 1911 and contains 100 stained glass windows. These windows can be broken into two categories, an earlier set dating to 1897, and a second set manufactured at the time the current church was built. Various circumstances have affected these windows over the years, including a large addition to the church in the 1960s and the increase of crime and vandalism in the Eugene downtown area. The 88 year old church building is still the central church for the First Christian fellowship in Eugene, and the congregation and church leadership have had to adapt the building to changing needs over the years. Examining how these internal and external forces have affected the stained glass will provide a real life example of the challenges faced by owners of historic stained glass, particularly churches.

Research and Mapping

Before beginning a condition assessment of any stained glass window, it is impor-

tant to understand the origin of the piece and its context. Identifying a window's maker, its date of manufacture and other basic information is critical to understanding the current condition of the window. Also important is understanding the window's context, whether a church, home or public building. Knowing a little bit about the architecture of the building, its use over time and the current needs of its occupants can greatly aid in assessing stained glass windows and making recommendations for their preservation.

Introductory Research

I began my research at the First Christian Church by dropping by the church to take an initial look at the windows and to see what records the church might have. I met briefly with the minister, Dan Bryant, who provided me with a pamphlet regarding the history of the windows. This pamphlet mentions that the sanctuary windows were made by the "Pevy Brothers of Portland" (First Christian Church ca. 1980). Despite the typographical error, this clearly suggested that the windows had been made by Povey Bros. The pamphlet continued, mentioning several windows located in classrooms on the west side of the building and describing them as coming from an earlier church building and dating to 1865. It also states that these windows were reportedly "made by a firm on the east coast and brought to Eugene via ship around the horn of South America" (First Christian Church ca. 1980). While brief and not entirely correct, this pamphlet did provide important information, and it is fortunate that the church had put it together. Many churches have brochures describing their stained glass, but these overwhelmingly tend to focus on explaining the symbolic content of the windows rather than their historical context.

In addition to obtaining any information that the church or other property owner may already have on the stained glass, it is useful to do some preliminary research on the

building. Local historical societies, libraries and city planning offices can generally provide information about when the building was constructed, the architect and its uses over time. Deed records can also be helpful in dating the building and identifying various owners. In researching the First Christian Church, I was fortunate to be studying a building that has had only one owner since its construction. Because of this, I was able to do most of my research "in house" or from the records kept by the church itself. The church has a historian, Dorothy Blood, who was most helpful in answering questions about the building and who has put together an invaluable collection of newspaper clippings and other material pertaining to the church's history.

Reading the material gathered by Mrs. Blood helped me to get an idea of the church's chronology and to find some interesting information about the stained glass windows. The First Christian congregation was founded in 1852 by an itinerant preacher from Illinois named Gilmore Callison. First located in the community of Pleasant Hill, Callison and the group moved to Eugene in 1866. They constructed their first church building in 1868 on the northwest corner of 9th Avenue and Pearl Street. This church was a small brick building with simple, classical styling (Figure 43). In 1897, the congregation moved to a new building which it constructed at the northwest corner of 11th Avenue and Willamette, across the street from St. Mary's Catholic Church. This building was designed by architect Delos D. Neer of Portland and could seat 400 people (Figure 44). Interestingly, a newspaper article dated December 13, 1897 and describing the dedication of the new church contains the following quote:

> One of the principal beauties of this complete temple of worship is the art memorial glass which to be appreciated must be seen. It is a noteworthy fact that the people of Eugene, after subscribing all and more than they felt able to stand, when they saw what could be accomplished by the expenditure of more money came cheerfully forward and contributed to the end that the building now has 13 beautiful memorial windows, and they have

Figure 43. The first First Christian church, built in 1868 at the corner of 9th Avenue and Pearl Street (courtesty First Christian Church).

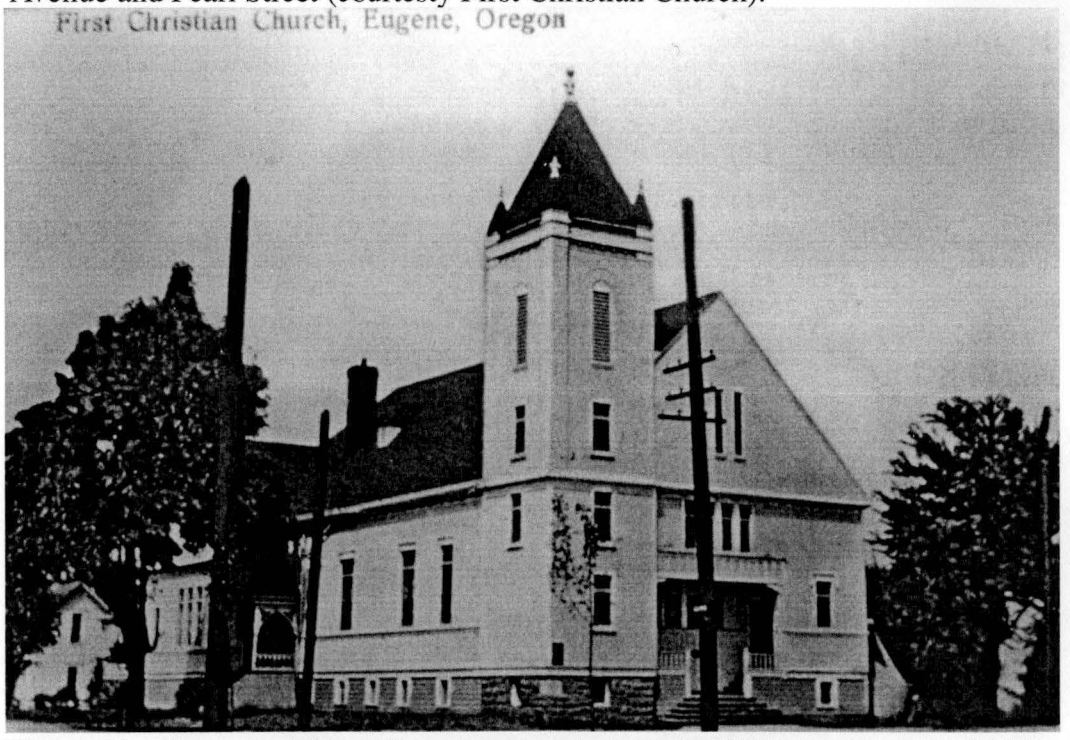


Figure 44. The second First Christian Church, built in 1897 at the corner of 11th Avenue and Willamette Street (courtesty First Christian Church).

> also contributed toward the enrichment of the other glass until very few churches are possessed of a more pleasing window effect. (*Eugene Register* 13 December 1897)

This article suggests that the older set of windows, identified in the church pamphlet as coming from the first church building and dating from 1865, actually came from this second building and date to 1897. The windows include an inscription reading, "Gilmore Callison organized this church March 1865." Such a dedication is often meant as a memorial to church history and should not necessarily be interpreted as the date of window construction. Local newspapers provide excellent sources for researching historic windows, particularly for churches or public buildings. In the late 19th century and early 20th centuries, the installation of large stained glass windows was a major community event, and descriptions of the windows were often written up in the newspaper. Unfortunately, this article did not include the name of the studio which made the windows, but it does help to firmly establish their date.

In 1911, the third and current church building was constructed on the west side of Oak Street, just south of 11th Avenue. This church, designed by New York architect George W. Kramer, was much larger and could accommodate 2,500 people. The building is in the American Renaissance style and features a cruciform plan with a central dome and an entry portico with ionic columns (Figure 45). A corner bell tower, designed by J.R. Ford, a local architect, was added to the church in 1926. In 1966, an annex extending to the south was added to the church to provide additional office space as well as a small chapel.

Identifying the Studio

Identifying the makers of historic stained glass can be very difficult. Often, artists did not sign their windows, and the documentation regarding their purchase has been lost.

Figure 45. The third, and current, First Christian Church. This early photo shows the church before the addition of the bell tower in 1926 (courtesty First Christian Church).

Many times these windows must remain anonymous or be attributed to a general group or category. However, if the studio can be discovered, this information can provide clues important to the windows' preservation as well as add to their interest. Period newspapers, church periodicals and parish records may include this information.

I have not yet been able to identify what studio made the older set of stained glass windows at the First Christian Church. Their date has been revised to 1897, but no church records exist from that time period, and the account in the local newspaper does not mention a studio. It is possible, as reported in the information provided to me by the church, that they were made by a studio on the east coast and shipped to Eugene, although by the 1890s they would probably have been sent by railway rather than shipped

around the horn of South America. It is also possible that they were made locally. If they were, they would certainly have been made by Povey Bros. Between 1895 and 1901, Povey Bros. was the only stained glass studio operating in Oregon.

Looking at window style can also provide some clues as to the artist, although this is generally a less than conclusive method. Books like H. Weber Wilson's *Great Glass in American Architecture* (1986), James Sturm's *Stained Glass from Medieval Times to the Present: Treasures to be Seen in New York* (1982) and Jean M. Farnsworth's *The Census of Stained Glass Windows in America: A Surveyor's Guide* (1995) are very useful in gaining a knowledge of stained glass styles typical of various origins and time periods. The 1897 windows at the First Christian Church are Victorian in style. They contain a variety of textured cathedral glasses as well as some opalescent glass and a number of large jewels. The windows are brightly colored and focus on typical late 19th century religious motifs such as a lyre, lilies, scrolls and a harp. All of these design devices are common enough to the time period that it is not possible to identify a studio based on style. However, the appearance of the windows, and especially the inclusion of opalescent glass, which was not invented until the late 1870s, does support the conclusion that they were made in the 1890s (Figure 46).

The newer set of windows are much easier to identify. In part this is because more documentation is available for the time. I have already mentioned the church pamphlet which identified the artist of these windows as the "Pevy Brothers." In addition, this time a newspaper description does give the name of the studio: "The art windows are things of beauty and the finest work ever put out by Povey Brothers of Portland" (*Eugene Daily Guard* 28 October 1911). Finally, to put any remaining doubt to rest, there is a signature on one of the sanctuary windows. "The Woman at the Well," located above the balcony contains an inscription in the lower right hand corner reading:

Figure 46. The studio that made this 1897 window has not been identified.

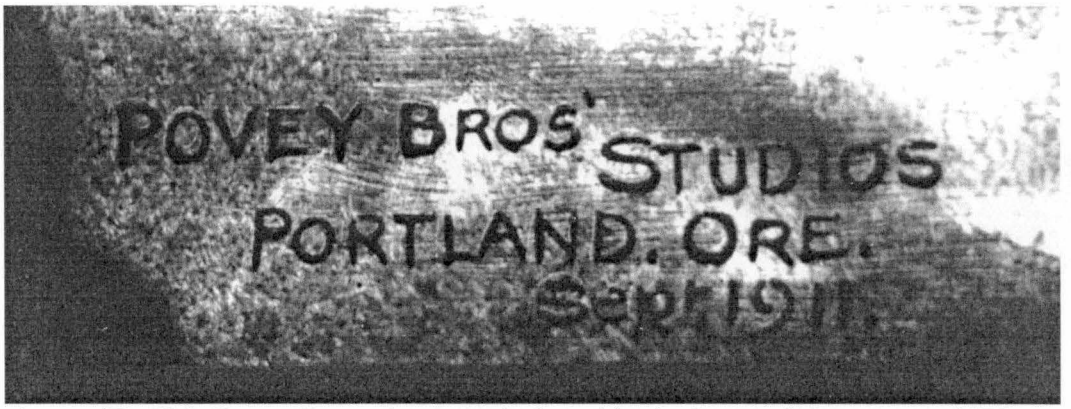


Figure 47. This Povey Bros. signature is found in the lower right corner of "The Woman at the Well."

"Povey Bros' Studios, Portland, ORE Sept 1911." It was common for just one window of a large installation to be signed, and the signatures are often small and unobtrusive, so it is necessary to search for them carefully (Figure 47). This is the earliest signature I have seen for Povey Bros. Most of their signed works date from the early 1920s.

Making a Map

Once some of these initial questions about the origin of the stained glass and the history of the building have been answered, it is crucial to make a map showing each window. This map will help to orient the researcher to the building, provide an inventory of the glass and serve as a guide for conducting the assessment. Making the map will also help the researcher to familiarize himself with the windows. If floor plans exist it would be simple to start with these drawings and map in the windows. If plans do not exist, start by drawing a simple plan. Starting in a corner, begin numbering the windows and adding the numbers to the plan. A key on the side can include a brief description of each window.

My map of the First Christian Church (Figure 48) shows that the building contains 100 stained glass windows. Making the map also showed me that these windows

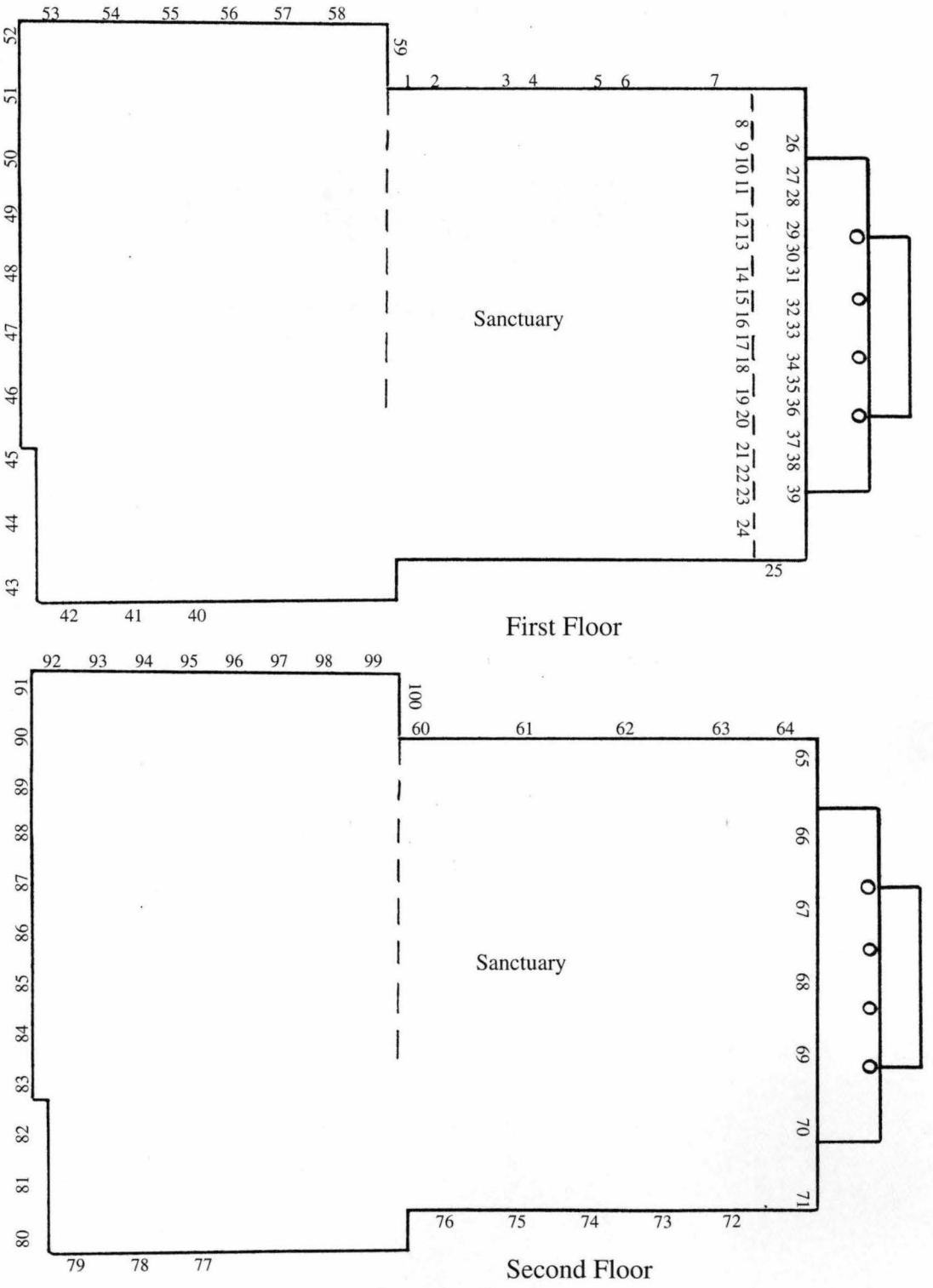


Figure 48. Map of the First Christian Church showing the location of all stained glass windows.

fall into distinct categories. In addition to the two basic categories of 1897 and 1911 windows, I found that the later windows could be broken up into groups of similar window types. On the first floor at the north and east sides of the sanctuary are 12 windows grouped in pairs (Figure 49). Each window contains a plated oval medallion showing a scene from the life of Christ. They are chronologically ordered beginning with the nativity on the west end of the north wall and winding around to the crucifixion on the south end of the east wall. A second group is found in a wall which divides the sanctuary from the narthex. This wall is filled with lovely windows, primarily of clear glass, in a floral Arts and Crafts motif (Figure 50). These fairly rectilinear windows have zinc cames while all the other windows have lead cames. A third group is found on the upper level of the sanctuary. Three windows on the north wall, five windows on the east wall and three windows on the south wall contain biblical scenes set within classical columns and framed with opalescent borders (Figure 51). The massive ionic columns framing the biblical scenes correspond to the two story ionic columns seen in the building's portico, tying these windows closely to their architectural setting. These windows vary somewhat in size, with those on the north being smaller, and one very narrow window located on the south wall closest to the organ and altar. Despite the variation in size, they all clearly use the same design motif and color scheme. A final group of windows is made up of opalescent windows in a distinctive badge shaped geometric motif (Figure 52). While these windows also vary in size, and some are operable while others are not, they use the same colors and basic design. These windows are primarily located in the stairwells, and along the back of the building, lighting classrooms and office spaces; none of them face into the sanctuary. Finally, four small windows located in the front doors of the church were made recently by Tim Yockey of Ashland in the style of the Povey opalescent badge design (Tim Yockey, personal communication 1999).

Figure 49. This window showing Christ with John the Baptist is an example of the "paired medallion" type.

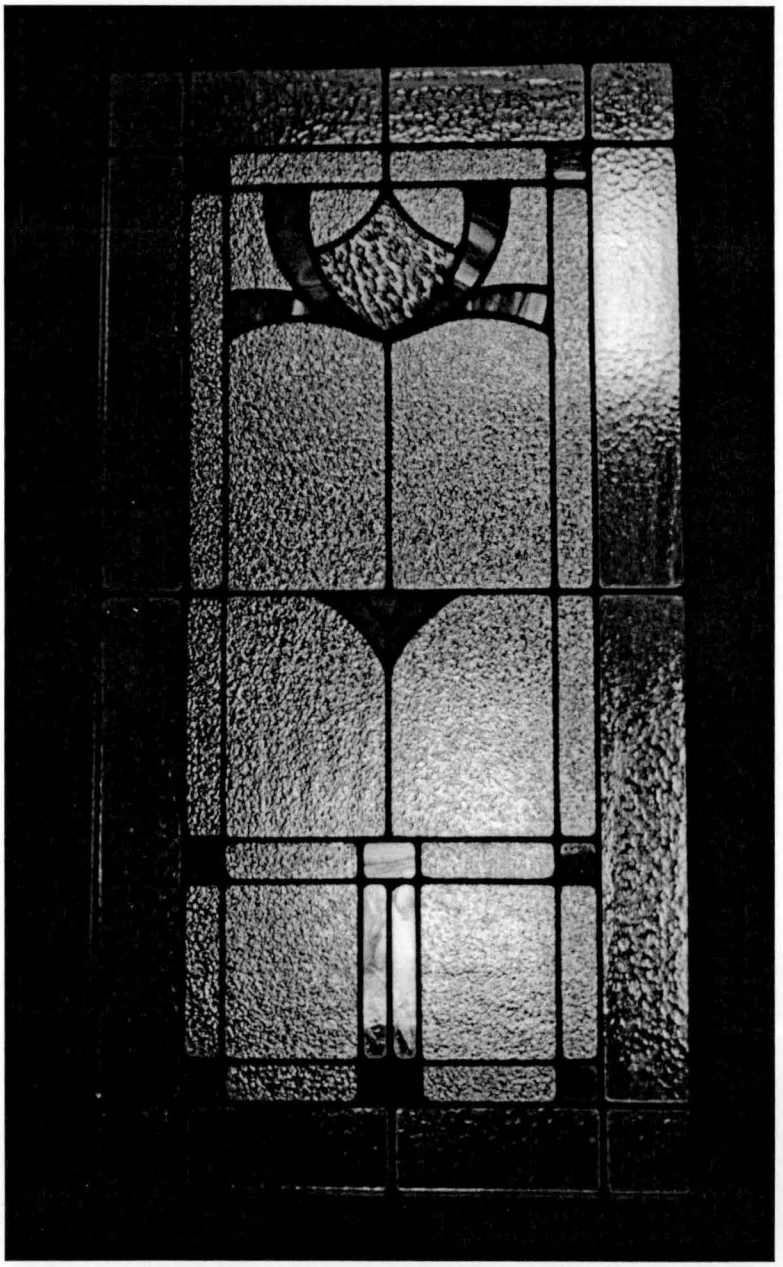


Figure 50. One of the Arts and Crafts windows found between the sanctuary and the narthex.

Figure 51. The "Woman at the Well" is one of the column framed biblical scenes found in the upper level of the sanctuary.

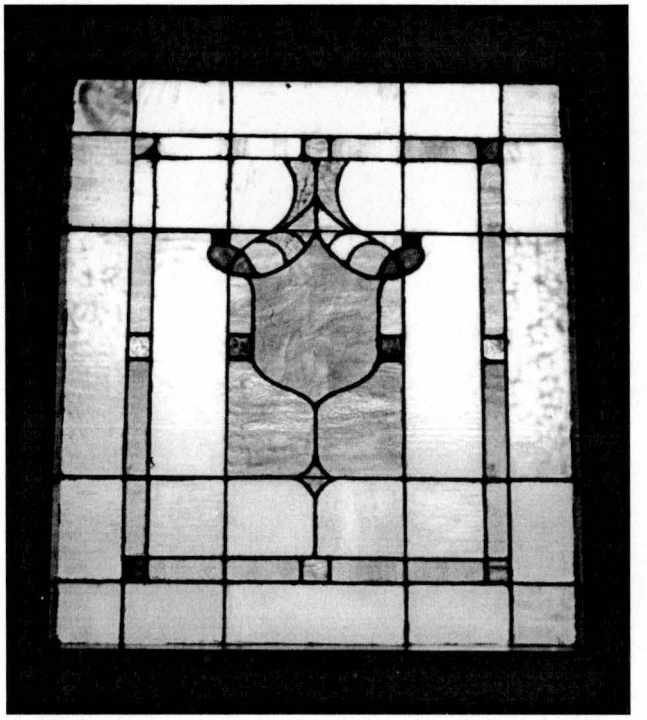


Figure 52. One of the many opalescent badge windows found at the First Christian Church.

Describing Pertinent Problems

Once each window has been identified and mapped, the condition assessment can proceed. Basically, every window will be examined to determine if it is suffering from any problems. These evaluations will be recorded and used to determine what restoration or repair strategy might be appropriate. Close observation is the key to performing a thorough assessment. Most people admire stained glass from a distance. Few take the time to come up close to a window and inspect it carefully. If a person does take this time, most stained glass problems will become evident. It is a good idea to look at each window several times. Going back and forth and comparing various windows in a church will make problems that were missed the first time around more obvious.

Breaks and Cracks

Breaks and cracks are probably the easiest preservation problem to identify as they are readily visible to even the untrained eye. It is not uncommon for stained glass windows to suffer damage to single or multiple pieces of glass within the composition. Identifying the source of the damage however, can sometimes be difficult. Many cracks and fractured panes are the result of vandalism or accidental breakage. However, others may be caused by internal stress within the window and/or the wall in which it is installed. Weight within the wall, or sometimes the weight of the window itself, can bear down on the glass, causing it to crack or break. If the glass is repaired, but the weight problem is not corrected, it can reoccur, so it is important to identify this situation correctly. If weight is a problem, the window will generally also exhibit sagging or bowing, which will be discussed in more detail shortly. Other problems like flaws in the glass or in the original design can also lead to cracks and breaks.

While generally in good condition, the windows at First Christian Church contain a number of breaks and cracks. Probably the most seriously damaged area can be seen in one of the older, 1897 windows located in the west wall of the church. This window, containing a scroll reading "He being dead, yet speaketh," appears to have suffered an impact or blow to its lower section. Several pieces of glass are cracked, and one broken piece is quite loose and on the verge of falling out (Figure 53). The damage appears to have been caused by an impact because of its limited area and because the window does not exhibit other signs of structural stress. The room containing this window has been used in the recent past as a classroom, and it may have been damaged by playing children. Another type of impact damage can be seen on one of the sanctuary windows, the scene of "The Good Shepherd" located on the east wall above the balcony. Here, a projectile of some sort, apparently a beebee or other fired missile, has impacted the upper

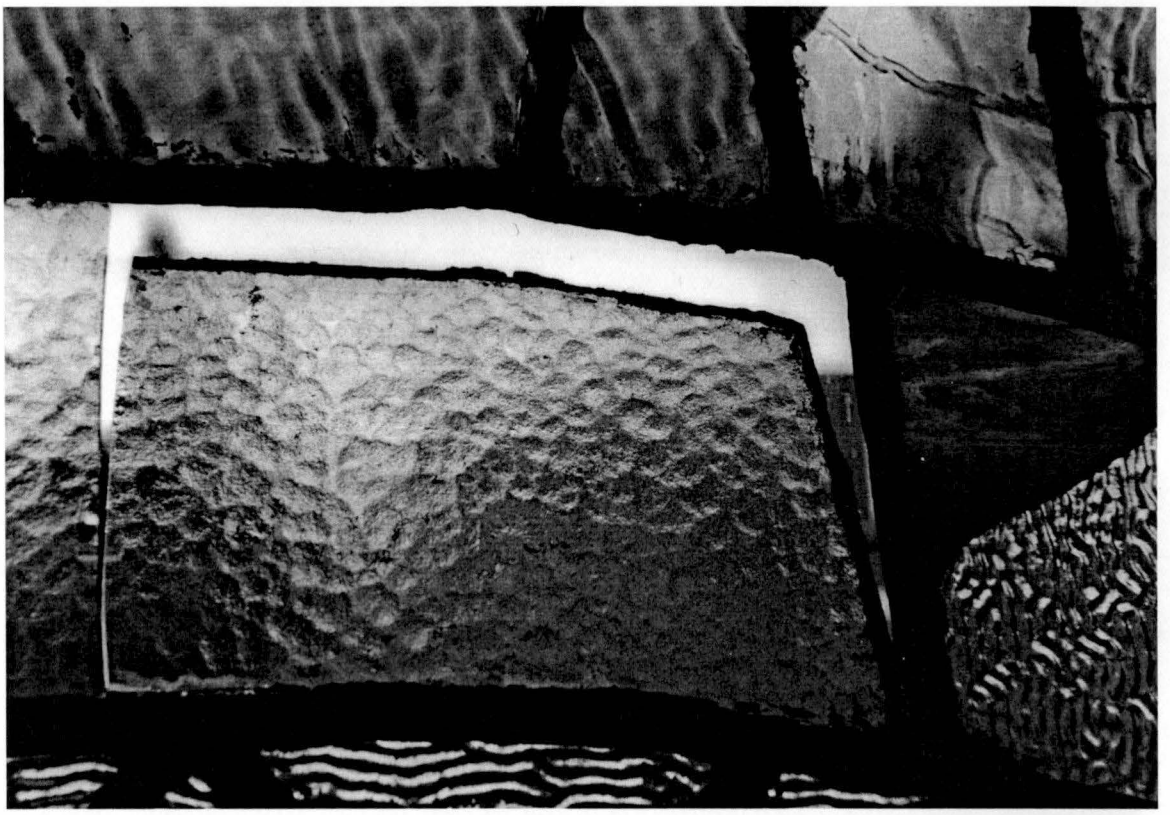


Figure 53. Damage to one of the 1897 windows may have been caused by an impact.

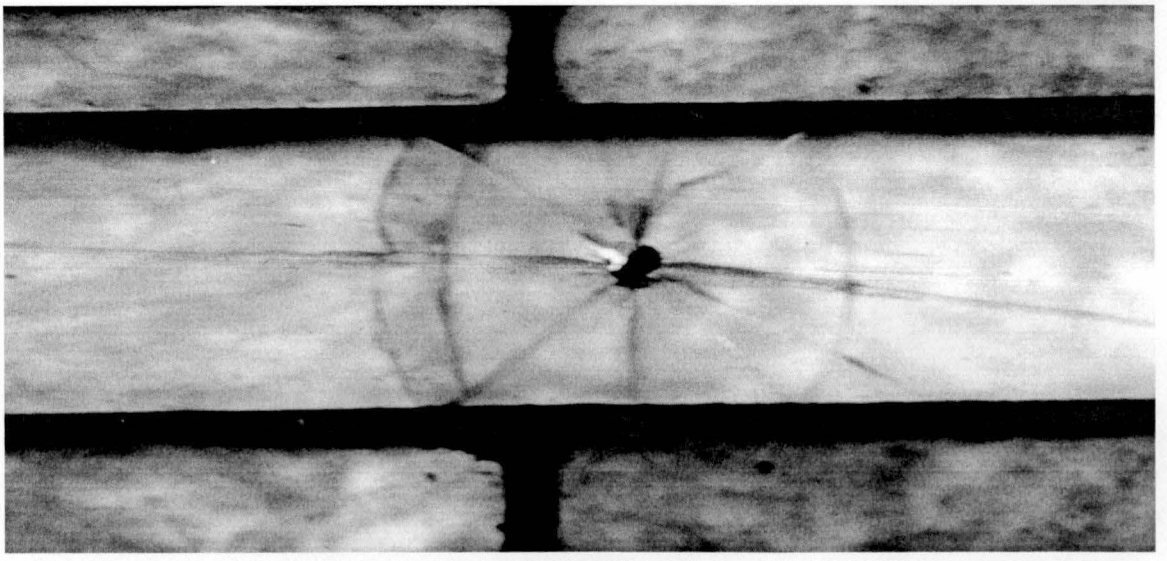


Figure 54. Projectile damage to one of the sanctuary windows.

Figure 55. Cracked inscription plate in one of the paired medallion windows.

portion of the window. The concentric fractures caused by this type of impact are clearly visible, as is some remaining portion of the projectile (Figure 54). Other breaks and cracks can be attributed to stress within the window. Several cracks run through a piece of glass with a painted inscription in a scene of "The Annunciation" located on the north wall of the sanctuary (Figure 55). This piece of glass runs along the bottom of the window, and is a fairly long, narrow piece, which makes it more susceptible to cracking. The damage was probably caused by the weight of the window pressing down from above, creating stress which eventually resulted in this piece of glass giving way.

Failing Putty

The component of a stained glass window that is the most likely to fail with time is the waterproofing putty. As described in Chapter V, this putty is squeezed into the gaps

between glass and came once the window has been soldered together. The putty hardens and forms a barrier which holds the glass in place and keeps out wind and rain. The putty is a critical element in the window's structural strength. Over time, this putty can dry out and begin to fracture and fall out of the came channels. This causes the waterproof seal to be broken, and water and air can seep through the open crack. The glass is no longer held firmly in place and can rattle between the cames, possibly causing cracks. It is important to note that putty was never meant to last for the life of the window. It typically needs to be replaced every 75 to 100 years. Replacing the putty is considered a normal part of the maintenance of stained glass windows. Making sure that reputtying is done when necessary will prevent other problems from occurring and lengthen the life of the window.

To check the putty, look in the small gap between the glass and the cames. The putty should provide a consistent seal along the entire length. If it appears dry and cracked, is falling out, or is not visible, the putty has probably failed. Be sure to check each window for this problem. Windows on certain sides of the building may have increased exposure to weather or sun and be more susceptible to failing putty.

The windows at the First Christian Church exhibit several different stages of putty installation. The 1911 windows still have some of their original glazing. The putty in these windows is black in color, and the line of putty is quite narrow, not extending from beneath the came flanges. This original putty does appear to be drying out in places, and in some instances is beginning to crack and fall out (Figure 56). While deterioration is beginning to occur, it does not yet seem to be a serious problem, and the majority of the putty joints are still intact. In some places on the interior and on the exterior of the figure windows, which have been covered with protective glazing, the putty has been replaced with a newer, gray colored glazing compound. The interior patches probably evidence

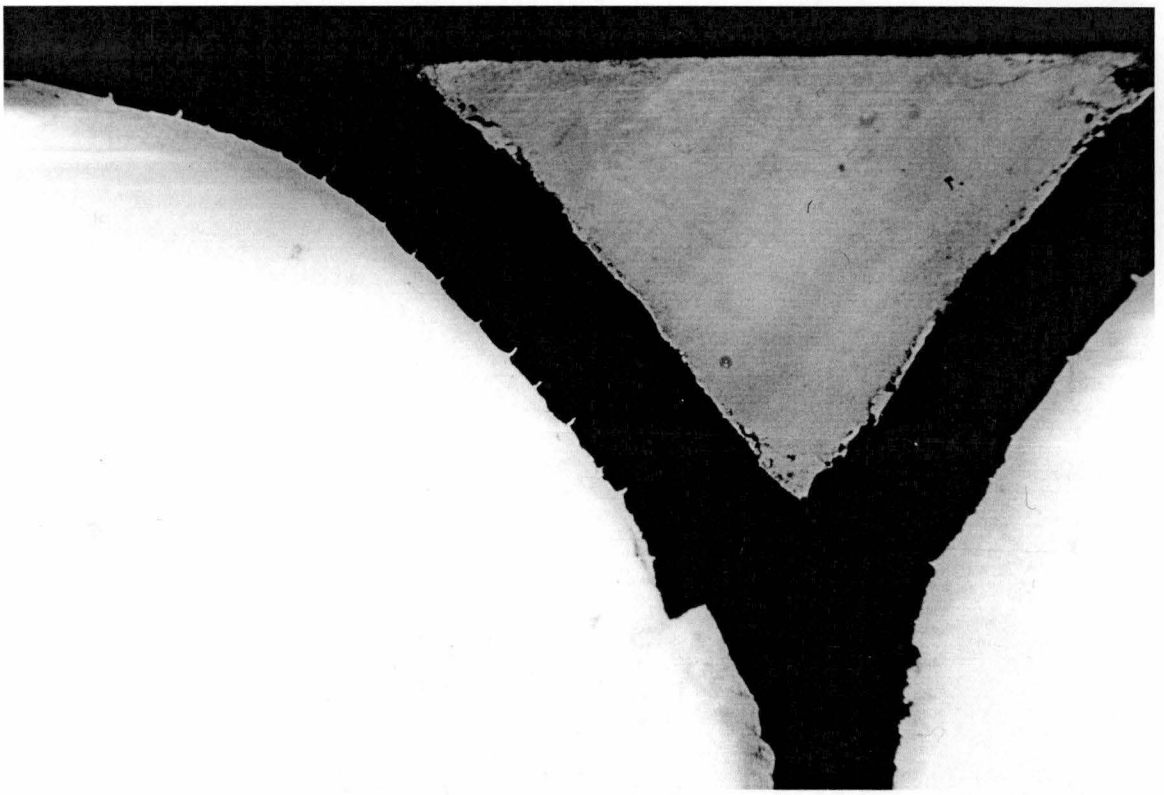


Figure 56. Old cracked putty is visible beneath this curving came.

spots where pieces of glass have been removed for repair or replacement. These lines tend to be thicker and extend beyond the cames onto the glass. One area on the window "We Adore Thee" contains an area where a piece of glass has been removed and replaced by cutting out the came flanges. When the glass was replaced, the cames were not carefully reformed, and the metal in this area is twisted, and in some spots appears to be missing (Figure 57). A wide streak of putty seems to be the main thing holding this area together, which is a potentially dangerous situation for the window. Putty, while contributing to the strength of a window, is not meant to hold it together alone. The strength of the cames is critical. It is important to spot these sorts of improper repair jobs because without proper support, the window is highly susceptible to further damage. The exterior of the windows was reputtied before the protective glazing was installed (Tim Yockey,

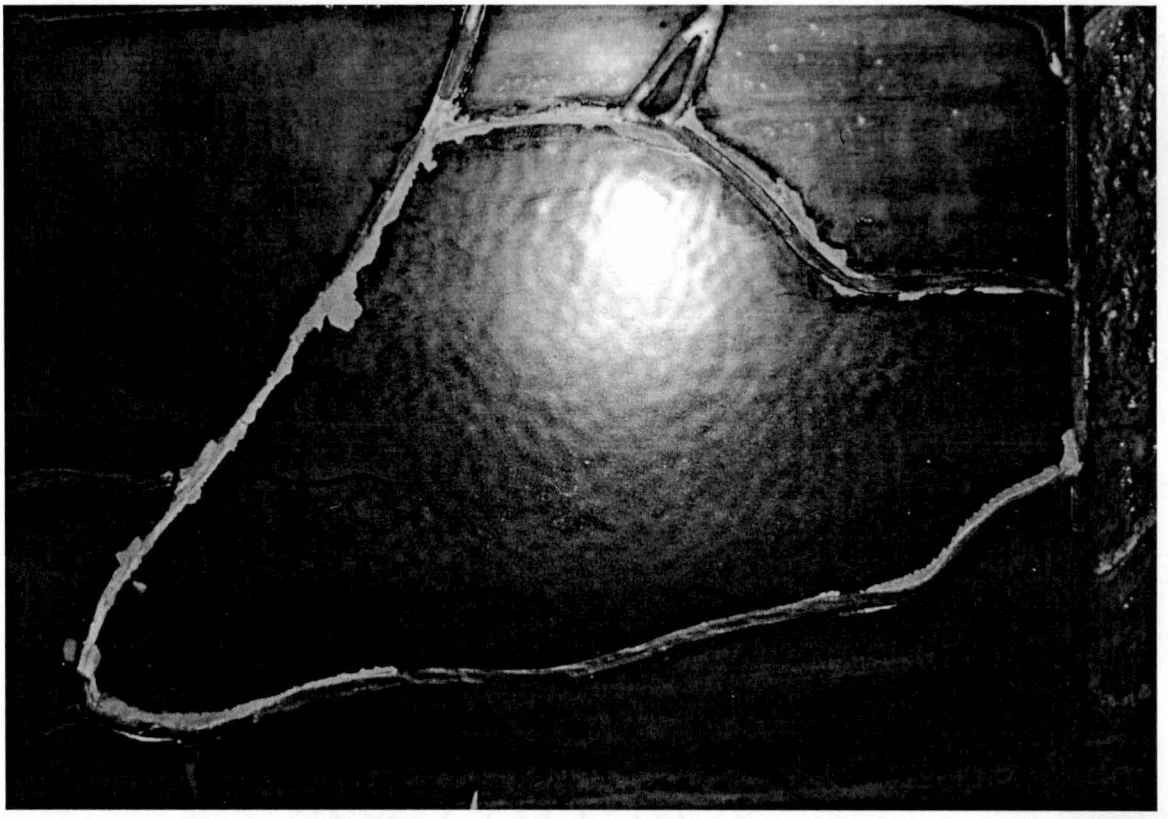


Figure 57. Repaired area in "We Adore Thee." Large patches of putty are clearly visible in reflected light.

personal communication 1999). Reputtying the entire window would have provided more stability, but it also would have required a great deal more labor and expense. The reputtying on the outside should help provide some additional strength to these windows.

The 1897 windows appear to have been reputtied at some point in the recent past. The joints are filled with the same gray putty evidenced in the repaired areas of the 1911 windows. Although the gray color probably does not match the original, this new putty seems to be quite intact.

Flaking Paint

Much of the detail in stained glass windows is provided by enamel paints or stains. These paints are brushed onto the glass and fired in a kiln. Ideally the paint

should melt and fuse to the surface of the glass. However, if the kiln was not hot enough, the glass was not clean or the paint was not properly prepared, the paint may not have completely fused to the glass. While stained glass artists would have discarded pieces that came out of the kiln improperly fired, sometimes these problems may not show up for many years. Then the paint can begin to crack, peel and flake off the glass. A close look at the glass will generally make these problems obvious. Often deteriorating paint will look faded, but in reality small bits of paint are slowly falling off the glass. Sometimes oil paints, or "cold paints," were used to color glass. In this case, the paint was applied directly to the glass and was not fired. These types of windows are extremely susceptible to paint failure and are not nearly as durable as windows colored with the fired enamel paints (Femenella 1994).

The painted areas of the windows at the First Christian Church appear to be in very good condition. Both the 1897 and the 1911 windows contain painted elements, inscriptions and figures, all apparently done with fired enamel paints. Only a few areas on the windows have suffered paint damage. The first instance occurs in a small section of a painted scroll on one of the 1897 windows located in the west wall. The scroll, which reads "Blessed are the Pure in Heart" is painted with a dark gray enamel, and the letters are scratched out so that light shines through them. The paint along the very top of the scroll has begun to degrade and fall off (Figure 58). It is unclear why this is occurring. None of the other windows from the set, including one with an identical scroll design, is suffering similar damage. This leads me to believe that the paint degradation was not caused by a flaw in the original paint. It is possible that this one piece was fired improperly.

Other areas of paint deterioration can be seen in the trace lines, or dark outlines, in some of the 1911 windows, particularly the paired medallions on the first floor of the

Figure 58. Damaged paint is visible along the top of this scroll in one of the 1897 windows.

sanctuary. Here, tiny bubbles of paint have come away from the glass leaving small bare spots (Figure 59). This condition is called "frying" and results when the paint is applied too heavily. When the piece is fired, the excess paint bubbles up and leaves these marks. While this would be considered a flaw in the work, it is probably one which is fairly stable and unlikely to degrade further. Some pieces within the nativity scene on the first floor which were destroyed have been replaced with newly painted glass done by Tim Yockey of Ashland (personal communication 1999). The First Christian Church is fortunate that its painted windows are in such a good state of repair overall. Other windows manufactured by Povey Bros. have not fared as well. The windows in the Elsinore Theater in Salem, Oregon, for example, are experiencing severe paint problems. There, the paint is literally peeling away from the glass (Figure 60). This is a much more serious

Figure 59. Frying can be seen is the trace lines which frame these lilies.

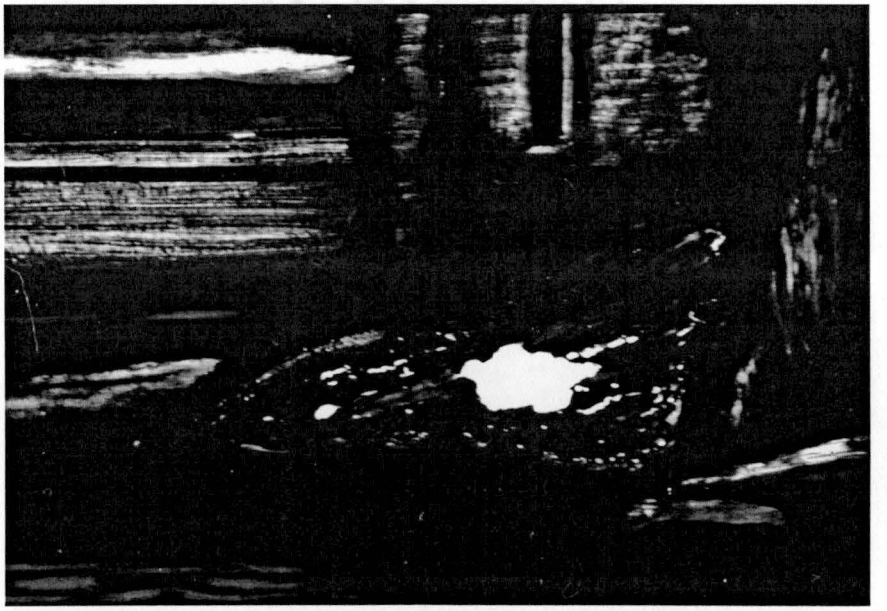


Figure 60. Peeling paint on a window at the Elsinore Theater in Salem.

problem and one that will be much more complicated for the owners to address.

Structural Problems

As mentioned earlier, stained glass windows can sag or bow due to pressures coming from the building or from the weight of the glass and lead itself. Iron support bars are generally soldered to the back of large windows to help support these heavy materials. However, if an insufficient number of bars were used, or if they become detached, the window can begin to deform. The leads themselves are fairly soft and malleable and will easily bend under pressure. If sagging is a serious problem, it will generally be visible to the naked eye, although sometimes it may be difficult to see. The window will be out of plane, bulging in or out when it should be level. Often the sagging will be concentrated in one area, at the bottom of the window, or in an area where the shape of the glass pieces and came work is delicate and susceptible to force.

Structurally speaking, most of the windows at the First Christian Church are in very good condition. Few are exhibiting bowing, sagging or metal fatigue. However, there are several windows, particularly those around the upper level of the sanctuary, which are facing some structural challenges. These are the largest windows in the church, and they show biblical scenes flanked by large classical columns and surrounded by opalescent borders. Each window has an inscription panel at the bottom of the scene, with its own series of borders. This particular area in several of the windows, particularly "The Last Supper," "We Adore Thee" and "The Good Shepherd," is showing signs of bowing and structural stress. In each of these windows, the dedication plate appears to be bowing inwards with deformation as much as one inch (Figure 61). These dedication plates are typical of the sorts of areas within stained glass windows which are susceptible to bowing; they are located at the bottom of the window, where the most weight concen-

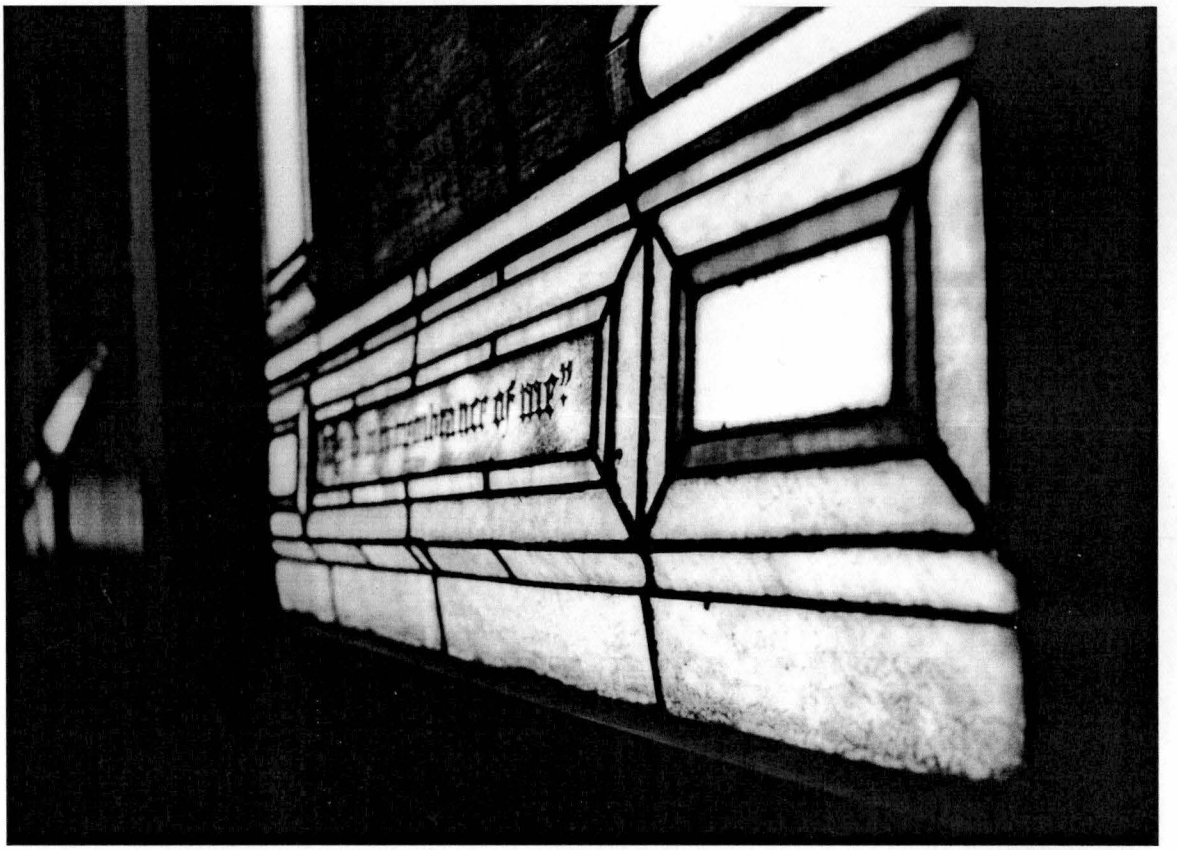


Figure 61. The nameplate in this sanctuary window is clearly bowing out of plane.

trates, and they are surrounded by narrow, parallel bands of glass and thin cames.

In addition to the bowing, several of these same windows are sagging away from their support bars. Particularly in the lower parts of the windows, it appears that the window is dragging downwards while the support bar is being bent up, separating it from the window. This indicates that the weight of the window is pulling the glass and leads down and that the original number of support bars are probably not sufficient to hold the window in place. The windows on the north wall, which are slightly larger, have five flat support bars. The windows of the east wall, being narrower and less heavy, have four flat support bars. It is also possible that pressures within the wall are pressing down on the windows, causing the bowing and sagging seen here. An architect or engineer would be needed to evaluate the structurally stability of the wall and its effect upon the windows.

Other Issues: Remodeling and Renovation, Protective Glazing

Besides the nuts and bolts aspects of stained glass preservation, issues are raised whenever changes are made to the surrounding environment. Buildings, in order to remain viable, must be usable, and the needs of the occupants tend to change over time. Changing needs usually mean that the building must be adapted so that it can continue to be a useful space in the present and the future. Even if a building remains relatively unchanged, the neighborhood around it is often dramatically transformed, altering its context and meaning within a community.

The First Christian Church has been subject to both these kinds of changes. At the time it was built, the church was clearly a landmark in downtown Eugene, and it remains so today, but the environment around the church has greatly altered over the last 90 years. The First Methodist Church once stood directly to the southwest, creating a sort of ecumenical focal point, but it was demolished in 1964. The First Methodist Church also had windows made by Povey Bros.; they have since been scattered to various owners. The large block on which First Christian Church is located has changed greatly in character over the years (Figures 62 & 63). At the time the church was built, the block contained, in addition to the First Methodist Church, the Eugene Public Library and the Eugene Hospital as well as a number of residences. Today, with the exception of the church and one house that has been converted to an apartment building, the block is entirely occupied by commercial businesses. Virtually all of the buildings in which these businesses are housed are of a modern vintage. Very few historic structures have withstood the pressures of modernization, changing tastes and periods of economic hardship. As the appearance of this area has definitely changed over the course of the 20th century, the way people use downtown has changed as well. Like most communities, Eugene has suffered the flight of businesses from downtown to outlying malls. Fewer people shop

Figure 62. An historic view looking north on Oak Street. The First Christian Church is hidden by trees on the left (courtesy First Christian Church).

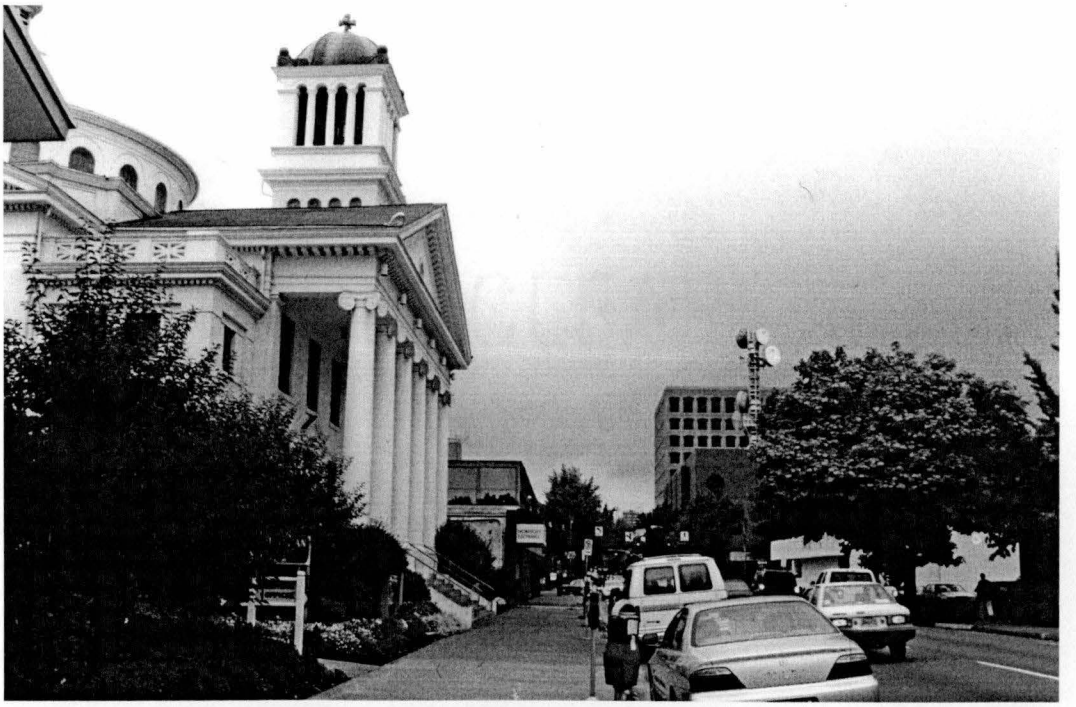


Figure 63. The same view in 1999. The street trees are gone as are most of the historic buildings, with the exception of First Christian Church.

downtown, and those that do tend to be more reliant on automobiles and less likely to walk. The Eugene street railway, a fairly extensive system of electric streetcars ran one block west of the First Christian Church on Willamette Street until it was dismantled in 1927 (Pincus 1991). At the same time that pedestrian traffic has decreased, street crime, homelessness and vandalism have increased in the Eugene downtown area. This has had a significant impact on the First Christian Church and especially on its windows. Churches tend to be targets for vandalism, and the church has definitely suffered its share of destructive violence. Rocks have been lobbed through the stained glass, and in one instance a quart beer bottle was smashed through a window, breaking its lower section.

Other, internal pressures have brought about alterations to the church building and impacted the windows. While the First Christian Church looks much the same as it did when it was built in 1911, some alterations have been made to the building over the years. The most significant of these was the addition of the south wing in 1966. This addition provided extra space for the church's growing congregation. Because the addition is attached directly to the south wall of the old church building, its construction meant the removal of some stained glass windows. Apparently, only windows of the geometric "opalescent badge" type were removed. Two filled in window frames on the east side of the south wall seem to have never held stained glass windows as none can be seen here in historic photographs. The addition also covered one of the figural windows in the sanctuary, the small window near the altar depicting the gates to heaven and titled "Come Ye Blessed, Ye Blessed of My Father." This window is now lit by an electric light behind the stained glass. This is a technique used by many churches where the growth of surrounding buildings or the presence of additions has blocked the light to the stained glass.

The increase in downtown vandalism has caused many churches to install protective glazing to shield their stained glass windows. Protective glazing usually consists of a

sort of storm window made of plastic, safety glass or wire mesh and installed on the outside of the stained glass window. Although these windows can provide critical protection for vulnerable stained glass, they can also cause unintended problems to arise. The protective window can trap moisture, dirt and heat against the stained glass, causing it to deteriorate. The protective glazing, particularly that made of plastic, can also discolor with exposure to sunlight, blocking light from being refracted through the stained glass and creating an ugly, cloudy surface on the building's exterior. Even glazing which remains clear detracts from the surface quality of the stained glass on the outside of a building. In addition to the refracted brilliance of stained glass inside a church or other building, stained glass has a distinctive appearance in the reflected light of exterior walls. The colors of the glass and textures of the cames can add a great deal of richness to a wall surface and enhance the streetside experience of the building. Covering these mosaic openings can greatly diminish the visual effect of a wall. Unfortunately, the rise of vandalism sometimes makes this a necessary sacrifice.

The protective glazing currently in use at the First Christian Church was installed quite recently, during the mid 1990s (Figure 64). It consists of sheets of thick acrylic which are screwed directly into the wooden frames of the stained glass on the buildings exterior (Figure 65). Only the figure windows have been covered with this glazing. The plainer, opalescent badge type windows have been left uncovered. The larger windows around the upper level of the sanctuary are covered with the same material with the addition of a horizontal aluminum brace running across the glazing. While this type of protective glazing does help to secure the windows from vandals, it can potentially cause other problems.

Although some controversy surrounds this subject, most stained glass experts agree that protective glazing, particularly if improperly installed, can cause major prob-

Figure 64. Protective glazing covers the sanctuary windows on the exterior.

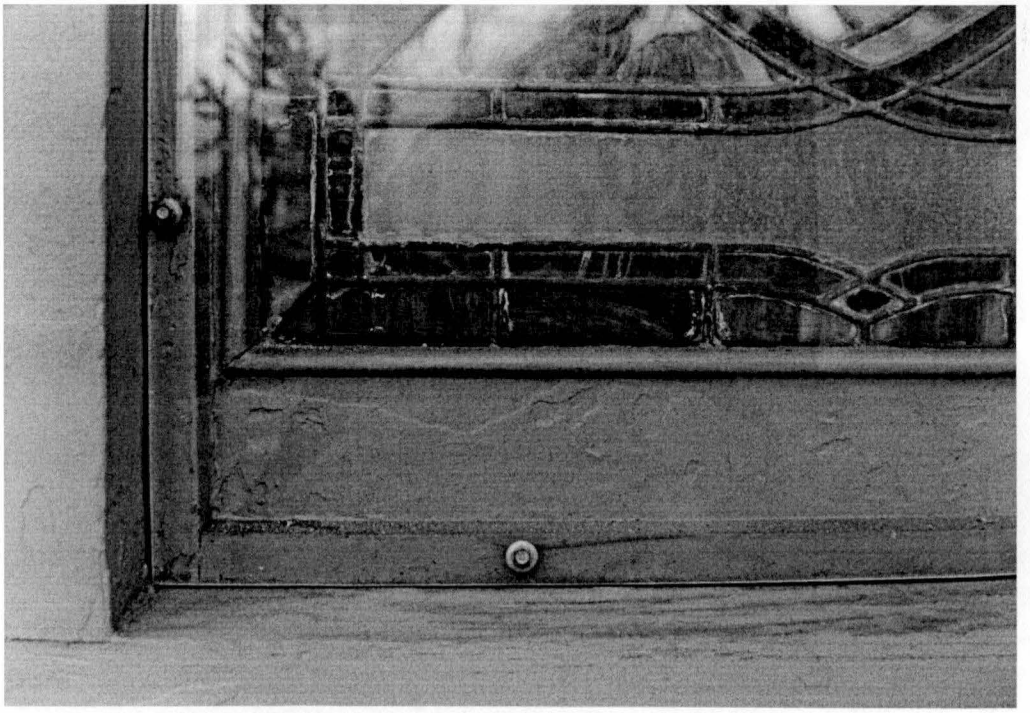


Figure 65. Acrylic glazing has been screwed directly into the wood frames of the stained glass windows.

lems for stained glass windows. If the glazing is not vented, heat and condensation can build up in the air pocket created between the stained glass and the protective cover. The moisture can cause deterioration of the cames and putty as well as dry rot in the frame. Heat trapped on the outside of the glass causes it to warm up to as much as 51% hotter than the ambient temperature (Achilles and Vogel 1993:21). The heat causes expansion and contraction of the cames, potentially leading to metal fatigue. The contrast in temperatures between the inside of the church and the air pocket also creates tensions within the window.

The acrylic glazing used at the First Christian Church is not screwed tightly to the frame, allowing some ventilation through the gap around the edge. This venting may or may not be adequate to release moisture and heat. No problems can be seen at the First Christian Church, but this may be because the glazing is only a few years old. Other problems could be created by the way this protective glazing has been installed. The acrylic glazing has been screwed directly into the wooden frame of the window. This means that as the glazing expands and contracts, and acrylics have a very high rate of expansion, the stress is being forced through the frame. Eventually, this stress could destroy the frame and cause the window to fall apart. Protective glazing should ideally have its own frame and be installed approximately one inch away from the stained glass. Finally, protective glazing detracts from the aesthetics of the windows. This type of acrylic glazing is less likely to yellow and haze than some other plastics, but it is susceptible to scratching, and its reflectivity makes the windows less visible. The rich texture that these windows lend to the exterior of the church is definitely shadowed by the presence of this glazing.

What to Do?

Any problems that may be encountered in the course of a condition assessment should be dealt with by a trained stained glass restorer. This section is intended to explain what the restorer should be expected to do, and is certainly not meant as a hands-on guide for do-it-yourselfers. However, having this knowledge will help stained glass owners to decide who to hire and how to wisely supervise the work.

Breaks and Cracks

If any cracks or breaks are found during the condition assessment, this may be a problem that needs to be dealt with expeditiously, particularly breaks. Broken or cracked glass may have occurred due to vandalism or accident, but it can also be due to serious structural problems. It is a good idea to have these areas checked by a professional stained glass restorer.

If the stained glass consultant feels that the cracks are fairly stable, it may not be necessary to repair them. Less stable cracks can be mended by a variety of methods including the injection of adhesives, applying copper foil to the edges and soldering, or the insertion of a small came to hold the two pieces in place. Adding a came or copper foiling are the traditional techniques, while edge gluing relies on fairly new products which have yet to be tested over a long period of time.

Alternatively, cracked panes can be removed and replaced with new glass. While this method eliminates the crack completely, it also eliminates the original glass. Any replacement glass should match the original in color and texture.

This same maxim applies to the repair of broken glass, which more frequently necessitates the use of replacement glass. To maintain the authentic look of the window, the new glass must be chosen very carefully. Today there are many more varieties of

glass available than there were 20 or 30 years ago, but it can still be very difficult to find an exact match for historic glass. If a perfect replacement cannot be found, the most similar glass should be used to preserve the effect of the original design as nearly as possible. The stained glass restorer should inscribe the date along the edge of the new glass, so that future restorers do not mistake this glass for the original. There are a variety of techniques which can be used to insert the new glass into the window. The flanges of the cames can be bent back to insert the glass, the glass can be made slightly smaller than the original so that it can be slipped into the opening, or the window can be dismantled. The stained glass restorer should be able to explain which method is most appropriate.

In the case of the First Christian Church, most of the cracks observed appear to be fairly stable. A number of windows exhibit old repairs, by came or copper foil, so it seems that various cracks and breaks have been attended to over the lifespan of these windows (Figure 66). Ashland stained glass artist Tim Yockey has been maintaining the windows for the last 25 years and has repaired numerous cracks and breaks in that time (personal communication 1999). The most serious current damage, that seen in the 1897 scroll window in the west wall does call for immediate repair. Several pieces of glass in this area are quite loose and could fall out and be lost if it is not repaired soon. If the original glass is saved, it may be possible to copper foil the pieces together and avoid having to replace the historic glass. Most of the other damaged areas, including the window shot with the beebee, are not in imminent danger of disintegrating. Nonetheless, these areas should be repaired when funding is available. Now that the windows are covered with protective glazing there is little danger that they will be further damaged by vandalism. The current cracks should be monitored to make sure they do not spread or cause the glass to come loose. Any new cracks should be noted as well; they will likely be the result of stress since the vandalism problem has been addressed.

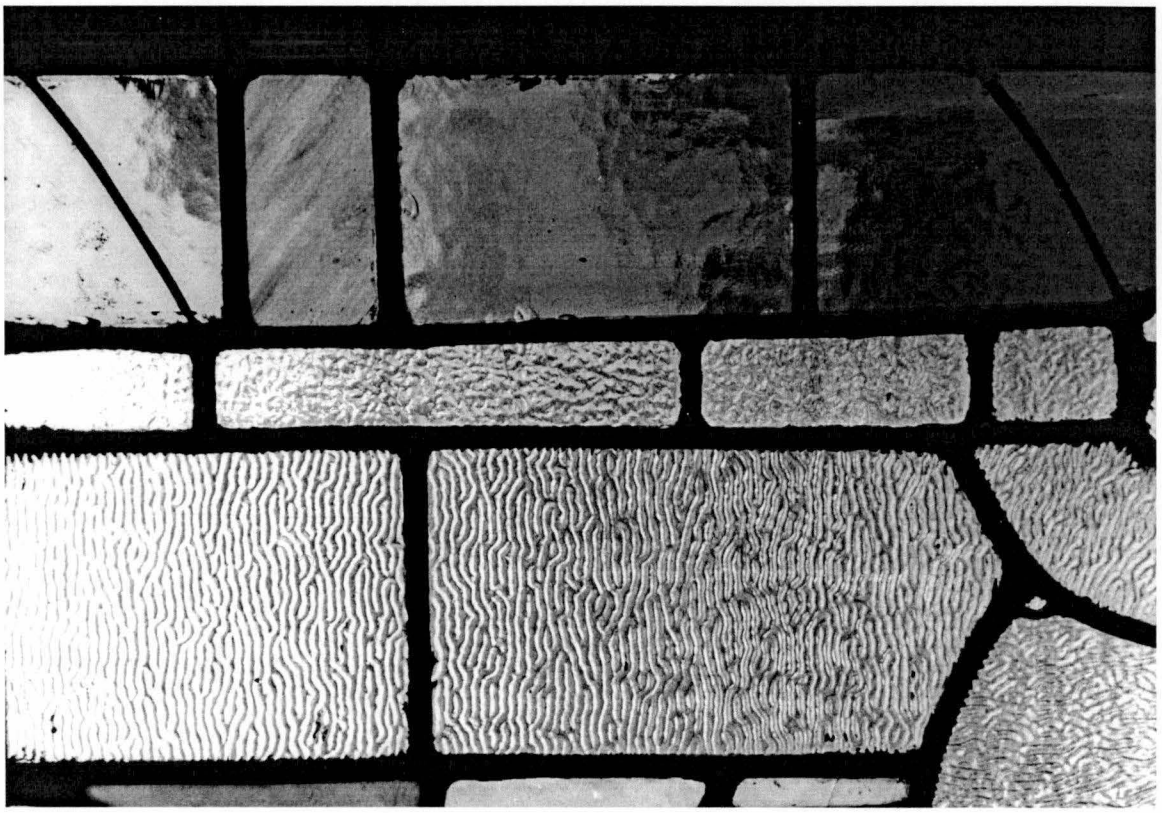


Figure 66. Old repairs are visible along the top of this window.

Failing Putty

Although failing putty is not an imminent problem, it is one that should be dealt with and not deferred for great periods of time. If failing putty is noted during the condition assessment, consider hiring a professional stained glass restorer to check the windows and reputty them if necessary. While allowing a short period of time to pass before attending to this situation will probably not cause any serious damage, if left unattended for year after year it could develop into a very bad problem.

During reputtying, the window will be removed from its opening. The stained glass restorer will take it to his studio where it will be carefully laid on a table. Old dried out putty will be removed from beneath the cames with the aid of wooden picks. Once the old putty has been cleared away, new putty will be squeezed beneath the cames. Most

putty has a pasty texture and can be forced into the gap between metal and glass with a forceful thumb. Each side of the window will be treated in this manner, and then the excess putty will be scraped away. The window will be cleaned with whiting, and the putty will be allowed to dry. Once the putty has dried completely, the window will be ready for reinstallation.

My examination of the windows at the First Christian Church revealed several different stages of puttying. The older, 1897 windows have already been reputtied in the not too distant past. These putty joints are in good condition and should not need repair for decades. The 1911 windows still have most of their original putty on the interior. In spots, this putty is beginning to deteriorate. Within the next 10 to 25 years it will probably be necessary to reputty these windows. When they are reputtied, it would be desirable to use a putty that more closely matches the original black material than the gray putty which has been used for repairs and on the windows' exterior. Some of these repairs require re-examination as well. In particular, the repaired area in "We Adore Thee" should be properly restored.

Flaking Paint

Damaged or deteriorated paint is a very serious problem for stained glass windows. If the condition assessment reveals paint damage, a professional stained glass restorer should be called in as soon as possible. Once paint deterioration has begun it will likely continue to worsen, so it is important to address this problem as early as possible.

There are several courses which can be taken to deal with deteriorating glass paint. The preferred option is to try to stop the course of deterioration and preserve what remains of the original paint. The cause of the damage should be identified: inadequate

original firing, faulty chemical paints or exposure to excessive moisture or heat. If damage is being caused by, for example, leaks around the frame of the window, these should be fixed before any further work is done. Then the stained glass restorer will set about conserving the remaining paint. The paint can be conserved by application of various consolidation liquids, plating with a new piece of glass or refiring. A variety of materials are now available which can consolidate the remaining paint and readhere it to the glass. These materials are still fairly new, and their long term stability has not been proven. Some conservators may refire the piece, attempting to melt the paints and reattach it to the glass. This technique carries the danger or damage to the old glass or paints if they do not respond well to the intense heat. Original paint may be conserved by the addition of a thin plate of clear glass. If properly attached to the original piece, it can protect the remaining historic paint. The stained glass restorer can also add missing or damaged details to this clear plate. This method has the advantage of being totally reversible. Finally, the alternative of last resort should only be used if the paint is too severely damaged to be saved. In this case, the stained glass restorer can replicate the painted piece. He will select a piece of glass of the same color and texture, cut it to the exact shape and repaint the design. In this case, having photographs of the original window can be very helpful. This method is the least desirable because the original piece is lost.

The painted windows at the First Christian Church are in very good condition. Only a few of the windows are suffering from paint damage. One of the 1897 scroll design windows in the west wall has paint damage along the upper edge of the painted scroll. The damage is quite limited and does not appear to be affecting the remainder of the window. The damage is probably a result of a flaw in the original firing as no problems with moisture or micro-organisms are observable. Since the paint in this area is

virtually gone, it would not make sense to use the paint consolidation techniques. The area might best be disguised by the application of a thin plate with this area painted in to complete the scroll. However, the damage is not highly noticeable, and it might easily be left alone. It should be monitored to make sure that the damage does not worsen over time. The same practice should be applied to the sanctuary windows which show frying in the trace lines. This paint problem is a result of a flaw in the original manufacture of the windows and likely will not continue or spread. However, like the scroll window, these windows should be monitored carefully. If any changes are observed, a stained glass restorer should be contacted right away.

Structural Problems

Structural problems in a stained glass window, while probably not imminently disastrous, should none the less be dealt with as expeditiously as possible. As with other types of damage, if left unattended, structural problems will most likely only worsen and become more difficult and expensive to fix.

The first step in correcting a structural problem is to determine its cause. Is the weight of the wall putting too much pressure on the window? Was the window built with an insufficient number of reinforcing bars? Have the metal cames become fatigued and ceased to support the glass adequately? Unless these questions are answered, the window may be repaired only to have it bow or sag again. Once the fundamental problem has been addressed, repair of the window can begin. It will be removed from its opening and transported to the stained glass restorer's studio. There the restorer will reverse the effects of the pressure and bring the window back into plane. Different restorers use different methods to accomplish this task. Generally, the area where the window is bulging will be carefully weighted down for a fairly long period of time, so that the metal

cames can slowly bend back into place. However, if the cames are fatigued it may be necessary to dismantle the window and relead it, replacing the cames with leads which match in size and profile.

As described above, many of the windows in the upper level of the sanctuary at the First Christian Church are experiencing structural problems. The majority of these windows are sagging downwards, causing the dedication plates at the bottom of each window to bulge inwards and separating the windows from their support bars. This problem is significant enough that it should be dealt with in the near future. At least three of these windows are bulging approximately one inch out of plane, the benchmark between a minor and serious problem. A professional stained glass restorer should examine these windows. He will determine what is causing the problem; stress within the walls and insufficient support bars are likely culprits. If he feels that the structural problems should be addressed at this time, the windows will be removed from their openings. They will be taken to the restorer's studio where he can gradually bring the windows back into plane and reattach the slipping support bars. If additional bars are needed they will be added and soldered to the window. Once the bulging has been corrected and the cause of the problem addressed, the windows will be reinstalled. The current bulging has not yet caused irreversible damage to the windows. The First Christian Church has the opportunity to nip this problem in the bud before more serious or irreparable structural problems arise.

Other Issues

The preservation and design issues raised by remodeling, renovation and changing needs are equally as important as issues of physical damage or deterioration. However, these are typically areas which must be addressed with more creativity and thought-

fulness. Few buildings, and few sets of windows, remain completely static over the years. Rather, they change with the needs of the building's inhabitants. There are ways however, that historic buildings and historic windows can be re-used to accommodate modern needs while preserving much of the building's historic materials and atmosphere.

Sometimes, as in the case of the First Christian Church, making an addition to a building causes stained glass windows to be removed or alters the levels of available light. In planning an addition, it is important to consider how this new part of the structure will blend with the old. Opinions differ on whether an addition should attempt to copy the style of the original building or should clearly be in the modern tradition. However, whichever of these options is selected, the key is that the original building, especially those parts which are the most meaningful to its users, should not be overwhelmed or eliminated. Stained glass is typically a very meaningful building element, and efforts should be made to preserve the stained glass in situ or re-use the windows in a creative way. This is not a new practice. For example, the 1911 First Christian Church was designed to contain the 1897 windows from the congregation's earlier church. Modern remodelings can re-use windows in this same way. An interesting example is the First Christian Church in Corvallis, Oregon, which also contains Povey windows. Here, some of the historic Povey windows dislocated by remodeling were installed within a large plate glass window facing a stairway (Figure 67). This device allowed the windows to continue to be appreciated, and while quite modern, is in keeping with the tradition of stained glass in stairwells and hallways. If no means for re-using windows can be found they should be documented and carefully stored away. After the windows are photographed in situ, they can be removed and packed in well padded wooden crates to provide support to the heavy materials. The packed windows should be stored in a dry and well ventilated area in hopes that they can be used in the future.

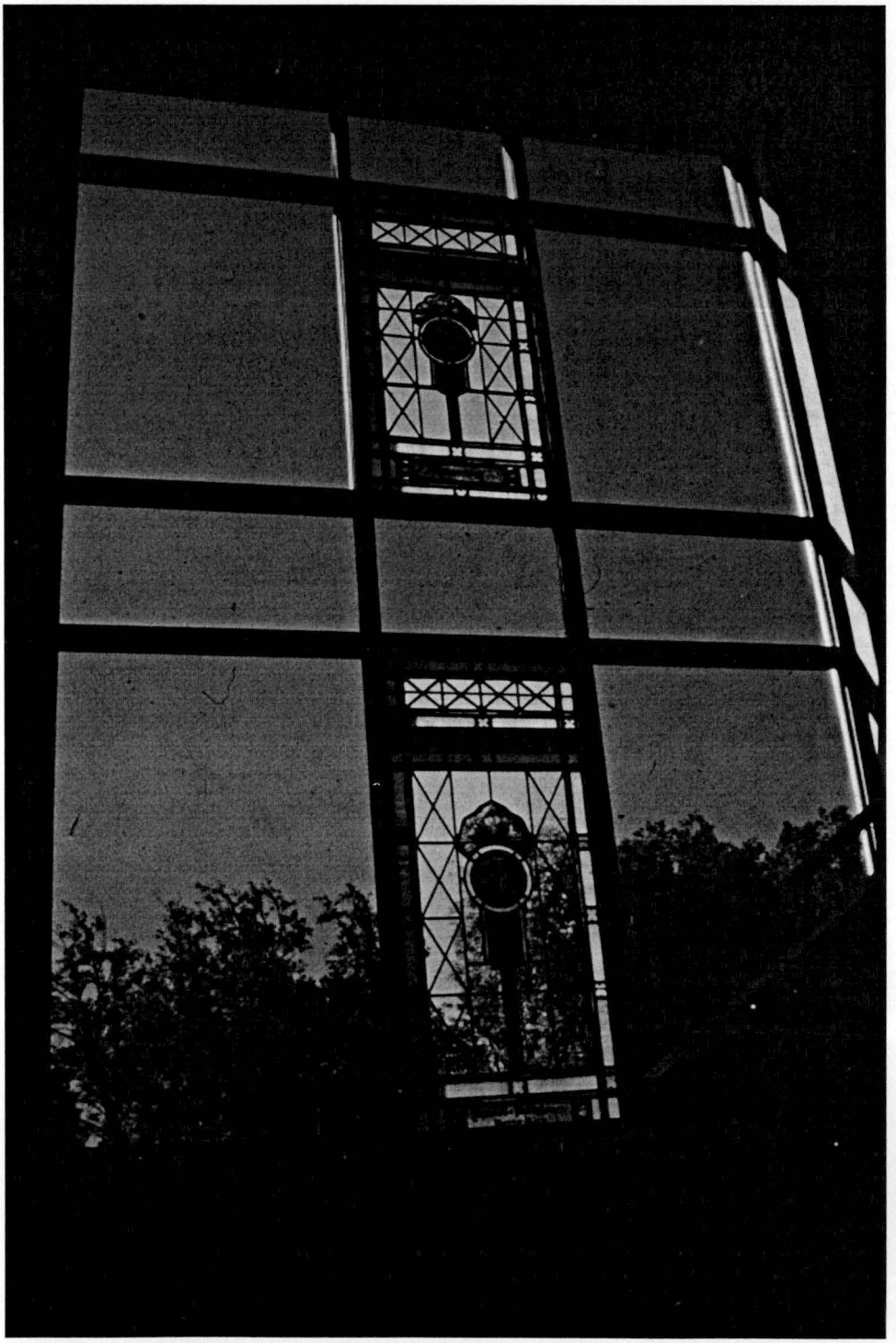


Figure 67. These Povey windows have been creatively reused at the First Christian Church in Corvallis.

Changing environments may make protective glazing necessary. If so, it should be installed with care. A product which will protect the windows yet obscure them as little as possible is preferable. Glass will most likely be a better and more long lasting material than plastic for this purpose. In addition, the glazing should be properly vented to prevent the build-up of moisture behind the glass. While an ordinary window company might be able to supply these protective coverings, it would be wise to work through a stained glass studio with experience in this type of project. They will have more knowledge of the range of products available and more experience in doing installations.

These glazing problems are readily in evidence at the First Christian Church. Although the acrylic glazing which has been installed will protect the windows from vandalism, it has the potential to cause serious problems for the windows. I would recommend these windows be closely monitored. If funding becomes available, the church may wish to replace the current system with one that will provide better venting and have a more attractive appearance. Glass, while more expensive than plastic, would be a better material in terms of aesthetics, expansion and contraction and durability. Any new glazing which is installed should be carefully vented to allow hot air and moisture to move away from the glass. It should have an independent frame and not be attached to the stained glass frame. The work should be done, or at the very least supervised, by a professional stained glass restorer.

Preventative Measures

It is important to know what to do if a condition assessment reveals problems in stained glass windows, but it is also critical to take steps to prevent these types of problems from occurring. There are measures that a church or other building owner can take

to protect their collection of stained glass and to avoid the types of major damage that can occur when windows are neglected for long periods of time.

Know Your Stained Glass

One of the most important things a church or other stained glass owner can do to protect their windows is to have a good record of the windows. Knowing at least a little bit about the windows can help the owner to understand the history and value of the stained glass and can be very useful if the windows are ever damaged. Most stained glass owners appreciate the beauty of their windows. However, some may not realize that these windows, in addition to serving as expressions of spirituality or natural beauty, are an important part of American artistic history. Historic stained glass is an irreplaceable and delicate commodity which must be preserved if it is to be enjoyed in the years to come. Stained glass, like that made by Povey Bros., is often important not just to the owners of a building, but to other community members who see it as they pass by on the street or when they visit a church or other building.

Mapping the windows, as described above, is a good place to begin in making a record. The map will show how many windows are owned, where they are located and indicate their subject matter. An important second step is to photograph every window. At the First Christian Church, the window which was smashed by a beer bottle was repaired by a stained glass restorer with the help of a photograph of the original window. Without this photograph it would have been more difficult to reconstruct the window. These photographs might also be useful for insurance purposes if the building was ever destroyed by fire or other disaster. Color slide film and black and white print film work well for photographing stained glass. Ideally, each window should be photograph with both types of film and in reflected and refracted light. The pictures taken in refracted

light will better show the colors and painting of a window while those taken in reflected light reveal the came structure and support bar position. The photographs can be labeled to correspond with the map.

Of course, in addition to creating a record of a particular set of stained glass windows it can be rewarding to study them for interest's sake. The research steps described above could provide information that would be helpful in conducting an assessment, but which is also important historically. Knowing a little bit about the windows; how old they are, who made them, what symbols they contain; enhances the experience of having these beautiful pieces of art. Understanding the history of the windows can also be a valuable educational tool. For example, a congregation that knows that its windows date to 1890 and were made in Portland by Povey Bros. will most likely appreciate these windows more than if they remained anonymously pretty. In the same vein, a public who is educated about historic art forms like stained glass will be more inclined to save and preserve these pieces of architectural heritage.

Regular Assessments

Conducting regular condition assessments of the stained glass can also be a very useful preservation tool. Like getting a check up from a doctor, these evaluations will help identify emerging problems before they become serious, saving time, money and pain in the long run. The evaluations are fairly simple to conduct and do not necessarily require the assistance of a professional. Someone who has an interest in stained glass and who has read the guidelines suggested in this chapter or other books about stained glass preservation should be able to do the evaluation.

Once a record of the windows has been created, it can serve as a baseline against which to compare emerging problems. Using a copy of the map, and recording notes on

it, the evaluator should carefully observe each window. Most stained glass problems are clearly visible to the naked eye if an observer takes the time to study the window carefully. Broken panes, cracks, sagging and paint damage should be noted. Any water damage around the window or loose pieces of glass should also be recorded. Comparing the older photograph of the window to its current condition is another useful tool. The comparison will reveal paint damage if any has occurred. These evaluations should be conducted yearly if possible, and the notes should be saved together in a folder or notebook, creating a record of the windows over time. Rephotographing the windows every five years or so is also recommended. Any serious problems noted during the course of the evaluation should be checked by a stained glass professional.

Insurance

Like any valuable possession, stained glass should be covered by insurance. Windows should be appraised by a stained glass studio representative or other stained glass expert to determine their replacement and market values. Most windows, except important works by well known artists, will have a higher replacement value than market value. The higher amount should be covered by the insurance policy. In case of loss due to fire, storm or vandalism, the insurance will pay to have a stained glass artist replicate the windows.

Cleaning and Maintenance

When cleaning a stained glass window, it is important to bear in mind the preservation adage to "use the gentlest method possible." Unlike clear glass windows, stained glass should not be cleaned with commercial glass cleaners and squeegees. Under no circumstances should they ever be power washed or sprayed with any kind of pressure

driven water. Overly harsh cleaning can cause permanent damage to the stained glass. In general, a soft rag, preferably damped with distilled water, will be sufficient to clean a stained glass window. The window should never be scrubbed, but wiped gently. Any areas of a window which are painted should not be cleaned. If it is not clear what parts are painted, look carefully. Any single piece of glass that has more than one color present is probably painted. Glass paints are sometime fragile, and it is best to avoid touching them in any way. If a painted area appears grimy, consult a stained glass professional. Sometimes, windows were treated with patinas or other substances to give them an old, antique appearance. If it seems that the grime on the windows is anything other than ordinary dust and cobwebs, leave it alone or consult a professional. Removing the antiquing would damage the value and artistic integrity of the window. Be sure to instruct any janitorial or cleaning personnel in the correct methods for cleaning the windows.

Like any other part of a building, stained glass windows may need periodic maintenance. While stained glass windows can last for centuries, as evidenced by the many medieval windows still existing in Europe, they cannot last if they are not properly cared for. Reinstalled putty is definitely a maintenance issue, albeit a very long term one since it generally only needs to be done every 75 to 100 years. Other sorts of maintenance should be done when regular evaluations reveal problems. A window which has just begun to bow can much more easily be fixed than one which has been allowed to get five inches out of plane and which may have suffered irreparable damage. Keeping an eye out for problems, and correcting them as they arise will keep stained glass windows in good shape and prevent the expense and hassle of major repair projects.

Preserving the Pacific Northwest's Legacy of Povey Glass

Povey windows, like those at the First Christian Church, are an important and beautiful part of the architectural heritage of the Pacific Northwest. Unfortunately, these windows are reaching a point in their life span where they are increasingly in need of maintenance and repair. If people in the northwest hope to enjoy these beautiful windows in the future, individual owners must take the steps necessary to preserve them. By being alert to signs of deterioration and knowing a little bit about stained glass, owners can prevent the serious damage that can occur with benign neglect. With the proper care, Povey windows can easily last for several more centuries to come.

CHAPTER VII

CONCLUSION

This thesis set out to analyze and describe the ways in which the Povey Bros. Glass Co. designed and manufactured stained glass windows and to define the place of this studio within the broader context of American stained glass. I began this project with an appreciation for stained glass that has only grown as I learned more about the work of the Poveys and other American glassmakers. While they were initially influenced by European glassmaking styles and techniques, American artists quickly developed their own distinctive and beautiful types of stained glass windows. By 1880, American glass was experiencing a boom that lasted until the artistic and economic changes of the 1930s.

The Poveys fall well within this era of creative and eclectic American glass making. Like other artists of the time they used opalescent glass and plating, the American advancements in stained glass invented by La Farge and Tiffany, to create rich looking windows. Like other artists of their time they experimented with landscape windows and elements drawn from nature, particularly in their windows for private residences. For church windows they frequently drew on popular religious artwork in the spirit of historical eclecticism that characterized the period sometimes called the American Renaissance.

I cannot say, after studying the stained glass designed by David Povey and fabricated by John Povey, that Povey Bros. made windows that could be characterized as revolutionary in design or manufacture. Rather, they are quite typical of their time period. However, this should in no way be considered a criticism. While Povey Bros. may not appear unique on a national level, they do hold special significance for the area

in which they worked and where most of their windows were installed, the Pacific Northwest.

The stained glass designed by Povey Bros. is a distinctive and significant architectural resource in this area. Like buildings designed by Oregon architect William Knighton, or gardens planned by Elizabeth Lord and Edith Shriver, Povey glass is a beautiful and well crafted product of local renown. Although the Poveys will never be as well known as Louis Comfort Tiffany or John La Farge, within the northwest region they were the predominant manufacturers of stained glass during the boom period of 1880 to 1930. Not only were they the most prolific manufacturer in the area, they also trained and influenced many of the other artists who came to have studios of their own.

Povey Bros. made windows for some of the most prominent local churches, homes and public buildings constructed during this time period as well as portable objects like mirrors, lamps and furniture. Today, particularly in Portland, Povey glass is still a part of many important historic churches and homes as well as museums and public buildings. Buildings like the First Baptist Church, the Governor Hotel and the Pittock Mansion are all Portland icons (Figure 68). A significant part of what makes these buildings special to the community are their Povey windows.

The Povey Bros. business was intimately tied to the fortunes of Portland and the greater northwest during the time in which it operated. It can be seen not only as an example of an American glass studio, but as an example of a local business that thrived off the northwest's booming economy. Povey Bros. was the type of family run operation that is rarely seen today, including brothers, sisters, wives and sons and daughters. Their business not only grew out of Portland's physical expansion, but it contributed to this expansion by adding to the attractiveness of many Portland buildings and increasing the city's cosmopolitan feel.

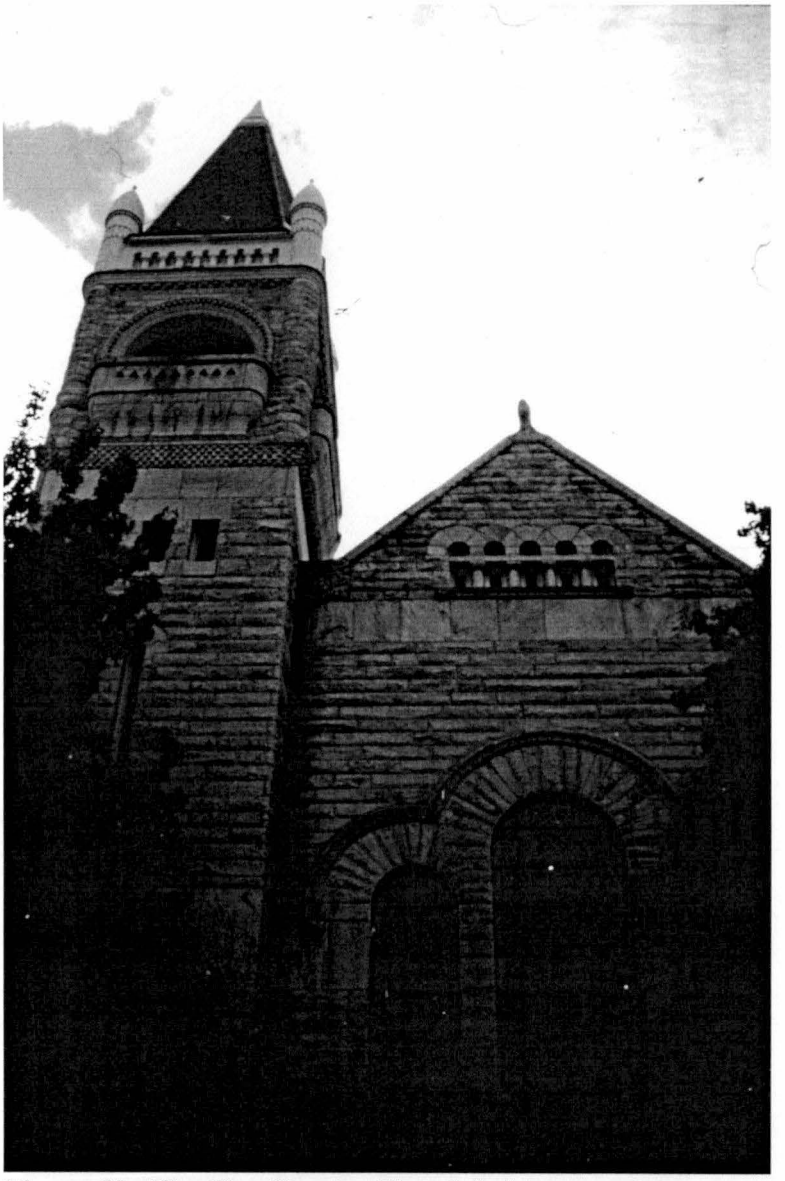


Figure 68. The First Baptist Church is just one of the many prominent Portland buildings containing Povey windows.

The Poveys are also regionally significant because of the efforts they made to tie their windows into their local surroundings. While many of their windows contain common American themes, they also chose subjects that would have a special meaning to denizens of the northwest. The many dogwood blossom windows produced by Povey Bros. draw on a natural subject which is native to the Pacific Northwest and an ornamen-

tal plant favored by many local gardeners. Scenes of natural beauty in Povey windows are often not generic, but come directly from local vistas. Windows such as this painting of Mount Hood found in the windows at Johnson Hall at the University of Oregon are clearly local in inspiration (Figures 69). Other windows focus on maritime themes like the tugboat scene from the Portland Memorial crematorium or the fish window at the John Povey House (Figure 70). These are subjects that never would have been painted by stained glass artists in the east or midwest.

Povey Bros. worked with color and hue in a way that was particularly suited to the local environment. All stained glass is highly dependent on the levels of available sunlight. It follows that windows designed for a desert locale would differ from those

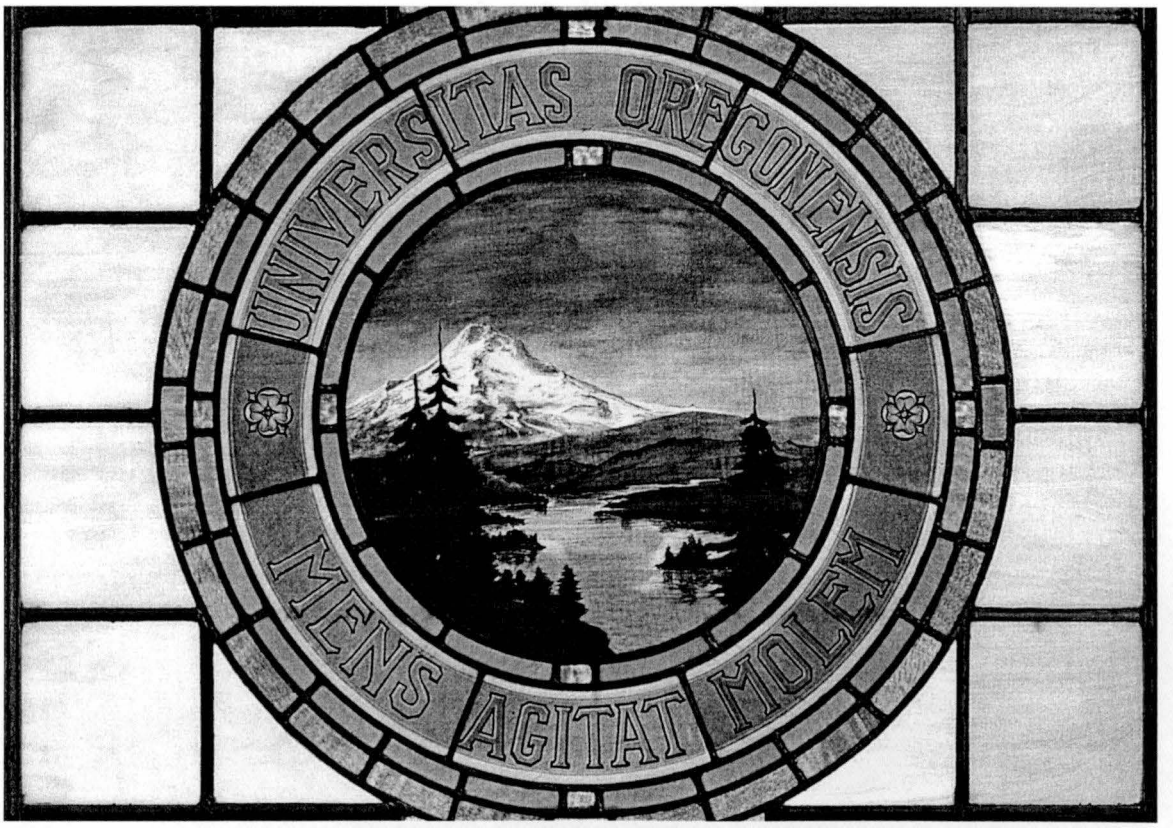


Figure 69. A naturalistic painting of Mt. Hood is the central element in a Povey skylight owned by the University of Oregon (University of Oregon - photographed by Jack Liu).

Figure 70. This maritime scene is clearly set in the Pacific Northwest, perhaps in the Columbia Gorge. Note the waterfall and snow capped mountain in the distance.

designed for a temperate climate. Gloomy gray days are a characteristic of the northwest that anyone who has lived here is familiar with. The many months of rain and clouds can make the world seem dismal and monochromatic. Povey windows were designed to provide relief from this condition and to take advantage of it. The windows contain carefully chosen glass that illuminates the given space and warms it with color.

Because Povey windows constitute a significant element within the historic architecture of the Pacific Northwest, it is important that these windows be preserved. A window by Povey Bros. is a regional treasure with its own artistic, cultural and historical value. Any building which includes Povey windows is enriched by their presence. The Poveys' work speaks to the natural and social environment of the region and is today evocative of a Pacific Northwest that no longer exists except in memory and remnants of material culture. These windows are a limited resource which can never be replaced if they are lost due to improper care. The destruction of a Povey window would mean the loss of a piece of art as well as the loss of an artifact from a particular moment in history and place.

In this thesis I have explored some of the ways stained glass owners can work to preserve their windows. Steps like proper cleaning and maintenance are key to ensuring the long life of Povey windows. The most critical elements necessary for their preservation, however, are caring and committed owners and an informed public. Many people in the northwest have heard of Povey glass, but few know how old it is, how it was made or what it meant to the people who first owned it. Hopefully, reading this thesis can help fill some of these gaps. I believe that the more people know about their Povey Bros. windows or Povey windows in their community, the more they will be interested in preserving those windows for generations to come.

I hope that this thesis will serve as a starting point for continuing research on Povey glass. More work could be done with the Probate Records, particularly the list of windows. It may be possible to match the items on the list with existing windows. It would be a daunting task, but making an inventory of Povey windows in the region would be a worthwhile preservation goal. Such an inventory would help to identify and date Povey windows, creating a much more comprehensive tool for studying their work

than is currently available. The Census for Stained Glass Windows in America coordinates a program to survey historic stained glass windows across the United States. This organization provides educational materials as well as standardized forms for surveying stained glass windows. Undertaking a survey of northwest windows would identify many Povey windows as well as works by other artists from this region and other parts of the world. The results of the survey would help to broaden our understanding of how stained glass was made and used in this area and would also be a valuable planning tool for churches or preservation organizations.

Povey Bros. has a unique status in the Pacific Northwest. They were the first studio in this area and the longest lasting. They were very influential and trained other local artists. Their work can be found in many of the area's most prominent and beloved buildings. And, Povey windows are distinctly representative of a significant period of local history and culture. For all these reasons, and because they are also beautiful works of art, Povey windows are deserving of further study as well as our admiration and respect.

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