THE SYMBIOSIS BETWEEN ART AND ARCHITECTURE AS EVIDENCED IN LE CORBUSIER'S RONCHAMP

by

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B.A., The University of Alberta, 1983

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ADVANCED STUDIES IN ARCHITECTURE

in

THE FACULTY OF GRADUATE STUDIES

SCHOOL OF ARCHITECTURE

We accept this thesis as conforming
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THE UNIVERSITY OF BRITISH COLUMBIA

October 2004

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08/10/2004
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Title of Thesis: The Symbiosis of Art and Architecture as Evidenced in Le Corbusier's Ronchamp

Degree: Master of Advanced Studies in Architecture Year: 2004.

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ABSTRACT

Le Corbusier was both artist and architect and the symbiosis between these dual roles contributed to his ability to think and create plastically. In order to understand the symbiotic nature of art and architecture in Le Corbusier's designs, a case study of the Chapel of Nôtre-Dame-du-Haut at Ronchamp (1951-5), France, is presented that examines the influences and intellectual beliefs that contributed to the architect's works. To appreciate the symbiosis of art and architecture, as it is evidenced in this chapel built in the aftermath of World War II, it is also necessary to understand Le Corbusier's earlier experiences in these two endeavours. A literature review of the writings of critics and commentators central to our understanding of Le Corbusier's development and architectural philosophy illuminates the beliefs and experiences that contributed to his design ideals. Le Corbusier's sketches are considered, from his early drawings while studying with his mentor, L'Eplattanier, between 1902 and 1912, to his individual sketchbooks, which date from 1914, and other media contemporaneous with the chapel's construction during the 1950s, to ascertain the genesis of the design aesthetic that contributed to the plastic values of architectural projects such as Ronchamp.

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ACKNOWLEDGEMENTS

I am grateful to my thesis advisor, Dr. Sherry McKay, for her wise counsel and to Dr. Jerzy Wojtowicz, Director of the Master of Advanced Studies in Architecture programme, for his support of my research. I would also like to thank the many professors who directed me in my studies and, in particular, Sandy Hirschen and Linda Brock of the University of British Columbia School of Architecture, who encouraged me to study architecture. Finally, I would like to thank my family and friends for their support.

CHAPTER I

INTRODUCTION

1.1 Introduction

Le Corbusier (1887-1965) is considered by some to be the greatest architect of the 20th Century.[1] Less publicly well known, although many have written about it, is his unwavering commitment to and prodigious production of art.[2] Le Corbusier generated an impressive body of paintings, murals, ceramics and sketches, among other media. Examining his evolution as an artist provides significant insight into his architectural interests. Le Corbusier was not unusual for his era in being occupied with questions of the interdisciplinary relationship between art and architecture, however, he is significant for his pursuit of multiple media, including architecture, as integrally symbiotic.[3] Other significant architects of the period, including those of the Bauhaus, considered art to be preparatory to, but not a necessary requirement or concommitent parallel of, architecture. It is apparent that Le Corbusier's interests -- be they number or geometry, beauty or utility, engineering or painting -- were not defined by specific media, as this 1959 *laudatio* from Cambridge University reveals: "...he believes with Pythagoras that number, and with Plato that geometry underlies the harmony of the universe and the beauty of objects and with Cicero that utility is the mother of dignity. He is also akin to Leonardo, in that he observes the principles of the engineer while applying to them the eye of a painter and sculptor, and to those who are seeking the famous 'Divine Proportion' he has proposed the standard he calls 'Modulor'...."[4] – This diversity of approaches is appreciable within the context of his travels, exposure to readings about art, politics and nature, and his own explorations with, first, decorative arts, then Purism and abstraction in painting. His early journeys abroad echoed the struggle between Art Nouveau and the modernist ethos of architects such as Auguste Perret and Peter Behrens. Similarly, the visionary aspects of his late career were evocative of the bold experimentation familiar to 20th century art and architecture. Le Corbusier's understanding of the interdependency of art and architecture, as evidenced in projects such as the Chapel of Nôtre-Dame-du-Haut (hereafter referred to as Ronchamp), distinguishes his architecture from that of many other modernists. Where the

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[1] Joanna Drew and Susan Ferieger Brades, "Preface and acknowledgements," Le Corbusier: Architect of the Century, catalogue of exhibit, Hayward Gallery, London, 5 March-7 June 1987 (London: Arts Council of Great Britain and Fondation Le Corbusier, 1987) 7.

[2] His collection includes over 400 canvases, 8,000 drawings, 100 each engraved works and collages, 30 enamels, 27 tapestries and 44 sculptures.

[3] Architecture is the design and construction of human-built environments and structures that respond to the physical, emotional, social, cultural and other needs of its users.

[4] Willy Boesiger and Hans Girsberger, Le Corbusier 1910-1965 (Berlin: Birkhauser, 1999) 10.

Bauhaus sought to establish architecture as primary, uniting the creative arts in the service of architecture in a manner that blurred the distinction between fine and applied arts, Le Corbusier, it will be argued, sought to exploit the symbiotic nature of art and architecture, recognizing them as co-adjuncts within the design process. Rather than an architecture of unification in which the fine arts were incorporated into a single form, as the Bauhaus advocated, Le Corbusier valued art as distinct from architecture, yet correlative in its ability to explicate the architectural premise.[5]

1.2 Statement of Purpose

The thesis will examine the proposition that Le Corbusier's art making and architecture are symbiotic or interdependent. It will concentrate on Le Corbusier's personal explorations in art and sculpture from the first decade of the 20th century to the 1950s, focusing on the Ronchamp chapel as a case study. Le Corbusier's writings and art production, as well as the interpretations of art critics and associates, will be reviewed and his influencers and architectural projects considered in pursuit of an understanding of the significance of his art production in relation to his architecture. The thesis will consider the importance of Ronchamp within the context of various descriptions, such as Denise Pauly's argument that the chapel is a "total work of art" and Peter Childs' suggestion that the chapel is distinguished by a "self-referential attention to form," in support of the contention that the concept of art and architecture as independent but symbiotic forms was integral to Le Corbusier's design aesthetic.[6]

Chapter II examines selected writings about Le Corbusier's involvement with art making and architecture, and about the function and efficacy of Ronchamp, for the purpose of determining what contemporary thinkers, including architects and critics of the period leading up to Ronchamp, considered to be the function of art in architecture and, more particularly, its purpose in Le Corbusier's architecture. The literature review concludes with an analysis of the implications of the selected writings for the proposed study.

Chapter III considers source materials and viewpoints relevant to an understanding of the symbiosis of art and architecture, particularly as expressed by the architect himself. The chapter explores Le Corbusier's sketchbooks to

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[5] Daniele Pauly, Le Corbusier: The Chapel at Ronchamp (Paris: Fondation Le Corbusier, 1997) 127.

gain an understanding of their significance to the thematic development of commissions such as Ronchamp. It traces Le Corbusier's development as an artist and architect by examining his association with art movements such as Purism, including with such French artists as Amédéé Ozenfant and Fernand Léger. Le Corbusier's use of forms from nature, his conceptual views on the Modulor, his interest in folklore and the symbology of the hand motif that appears throughout his work and at Ronchamp are considered to gain an understanding of major themes in his art and architecture. The chapter also contextualizes this largely Le Corbusier-derived material by examining other points of view about what was more commonly referred to as the synthesis of art and architecture. Contempary debates, between 1900 and the 1930s and post-1930, including the CIAM (*Congr 'es Internationaux d'Architecture Moderne*) and the Bauhaus, are discussed. The chapter further investigates Le Corbusier's attitude toward the relationship of art to architectural production.

Chapter IV is a case study of Ronchamp chapel, which seeks to illustrate how the interplay of art and architecture achieve symbiosis within Le Corbusier's work. Ronchamp will be examined as an example of the expression of Le Corbusier's beliefs about this interdependent relationship. The chapter will consider the evidence about the intent of Ronchamp, including the specifications and constraints of the architectural programme -- as apparent in the requirements of the commission -- and the role of the Catholic Church in debates about the synthesis of art and architecture. The purpose of Le Corbusier's design programme will be reviewed in the context of the importance of the design to ideas about the synthesis of art and architecture.

The conclusion, Chapter V, summarizes the research and findings of the thesis in support of the proposition that the appropriation of art to Ronchamp is the consequence of Le Corbusier's understanding of its relationship to architecture. The conclusion reveals the continuity and divergence in Le Corbusier's writings as they relate through time and to the architectural programme at Ronchamp. The context for the chapel is compared to Le Corbusier's key writings, Towards a New Architecture, L'Esprit Nouveau and other relevant works.

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[6] "Art had to be about art before it could be about the world: either form before content, or form as content." Peter Childs, Modernism: the New Critical Idiom (London: Routledge, 2000) 111.

1.3 Definition of Terms

In order to comprehend the body of work, it is necessary to define various terms and their meaning within the context of this thesis.

1.3.1. Art

The use of the term modernism refers to an ideology that underlies modern art, architecture and design: a manner of aesthetic value that favors the present day in reaction to past idioms, such as academic or classical art, and that engages in a critical examination of inauthentic ("the idealized, the sentimental, the euphemistic in our culture") modalities.[7] Modern art, which refers to painting and sculpture, is generally considered to have emerged in the mid-nineteenth century as a consequence of the availability of new materials and techniques. The Modern movement is understood as a "succession of avant-garde (Western) styles in art and architecture."[8] John A. Walker's description of modernism as "...art which takes itself as subject matter, emphasis on medium, process, and technique, 'honest' use of materials, foregrounding of devices" will be adopted for the purposes of this thesis.[9] The distinction will be made between fine art, which comprises painting, sculpture, printmaking and architecture and is defined as art that functions to create aesthetic expression, and applied art, which is art used in the design or decoration of an object that remains subservient to the object's function.[10]

Le Corbusier traversed a spectrum of fine art movements from Art Nouveau to modernism, ultimately rejecting the application of art to architecture in any manner that might be construed as dishonest by virtue of being merely decorative.

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[7] Charles Harrison, "Modernism," Critical Terms for Art History, eds. Robert S. Nelson and Richard Schiff, 2nd ed. (Chicago and London: The University of Chicago Press, 2003) 201.
[8] Edward Lucie-Smith, The Thames and Hudson Dictionary of Art Terms (London: Thames and Hudson Ltd, 1984) 122.
[9] John A. Walker, Glossary of Art, Architecture and Design Since 1945: Terms and Labels Describing Styles and Groups Derived From the Vocabulary of Artists and Critics (London: Clive Bingley Ltd, 1977) 197.
[10] Ralph Mayer, A Dictionary of Art Terms and Techniques (New York: Thomas Y. Crowell Company, 1975) 145, 17.

1.3.2 Synthesis

Synthesis refers to a combining of parts into a whole.[11] In the context of this discussion of art and architecture, when used with reference to Le Corbusier, synthesis means to integrate fine art (painting, sculpture, ceramics, tapestries), other media, such as electronic music, and architecture for the purpose of balancing humankind's emotional or spiritual needs with its cerebral or functional needs. This distinction is sympathetic to the aims of CIAM, of which Le Corbusier was a leading figure, and by which synthesis is taken to mean to achieve a "reintegration" or alliance of the plastic arts (architecture, painting, sculpture) for the purpose of ensuring that, through this alliance, architectural expression satisfies society's emotional needs in a manner that is "in tune with" the spirit of the age.[12]

1.3.3 Collaboration

Collaboration is distinguished from synthesis and symbiosis as the process of two or more artists or architects working together for the purpose of expression and creation.[13] While the term is relatively insignificant to the thesis, other than in the context of Le Corbusier's collaboration with Ozenfant and Léger during his Purist period, it is important to establish its parameters, as opposed to other seemingly correspondent terms.

1.3.4 Symbiosis

Symbiosis means to be interdependent and to derive benefit from a mutual relationship. For the purpose of this thesis, the form of symbiosis known as "mutualism" will be assumed. Therefore, to suggest that art and architecture are symbiotic is to suggest that they derive meaning from their mutual association and that architecture is in itself art, just as art contributes to the overall aesthetic value of architecture. It will be argued that Le Corbusier practiced an architecture that assumed that the fine arts, and more particularly painting, sculpture, murals and tapestries, were symbiotic. This thesis will contend that Le Corbusier's architecture transgressed synthesis, with the consequence that certain of his architectural pieces became interdependent upon painting, sculpture and/or other fine arts for their realization, acquiring characteristics of fine art that had the effect that the architecture would not have been possible

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[11] F.G. and H.W. Fowler, eds., Pocket Oxford Dictionary, revised 8th ed. (Oxford: Oxford University Press, 1996) 925.
[12] Sigfried Giedion, "Our Attitude Towards Problems of Aesthetics," ed. S. A. Giedion, A Decade of New Architecture (Zurich: Editions Girsberger, 1951) 35.
[13] Fowler 160.

without the art co-existing in the service of the architecture. This is distinct from a synthesis of the arts, in which the art is part of the whole (as in part of the total effect by virtue of being applied to or included in the architecture) but does not, in itself, become a necessary constituent in order for the architecture to succeed.

1.3.5 Other Terminology

Other terms specific to this thesis include anonymous production, which refers to machine-produced objects of everyday use, such as vases and bottles, and *objets à réaction poétique*, by which Le Corbusier references objects from nature, such as shells or bones.

References to primitive art or architecture in Le Corbusier's work, and in this thesis, mean folkloric designs produced by cultures external to the European or Western tradition, as witnessed during his Journey to the East.[14] As defined by Mark Antliff and Patricia Leighten, "primitivism" in relation to Western art and, in particular, modernism, refers to: "...an act on the part of artists and writers seeking to celebrate features of the art and culture of peoples deemed 'primitive' and to appropriate their supposed simplicity and authenticity to the project of transforming Western art."[15] It is acknowledged that aspects of this interpretation are generally out of favor in modern art history, as they assume that Western art and architecture are a victory of creativity over the irrational, in contrast to other cultures in which "cultural production is related to material needs or instinctual drives."[16]

Abstraction refers to art in which the portrayal of real objects is non-primary or omitted in place of an aesthetic that comprises a formal configuration of shapes, lines and colors.[17] While Le Corbusier practiced a representational style of art during his Purist period, elements of abstraction are present in his paintings and he is generally considered to be among those architects who were receptive to abstract art. Le Corbusier's work is abstract in that is replaces details with primary shapes and forms, as opposed to non-representational, in which images are non-recognizable.

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[14] Mayer refers to this as "the art of peoples who adhere to a traditional pattern of life, without evolving socially or artistically over the generations." Mayer 311.
[15] Mark Antliff and Patricia Leighten, "Primitive," Critical Terms for Art History, eds. Robert S. Nelson and Richard Shiff, 2nd ed. (Chicago and London: The University of Chicago Press, 2003) 217.
[16] Antliff and Leighton, "Primitive," 218.
[17] Mayer 1.

1.4 Methodology

1.4.1. Statement of Methodology

Although other critics have written about Le Corbusier's interest in the synthesis of art and architecture, including its manifestation at Ronchamp (Daniele Pauly, Stanislaus von Moos, Christopher Green, Stephen Gardiner), this thesis will be distinguished by the assumption that the co-relationship between art and architecture in Le Corbusier's work is symbiotic in nature. The thesis posits that in order for Le Corbusier to reach beyond functionalism in his architecture, it was necessary for the architect's work to achieve a symbiotic state with art.

Questions considered in the course of the research were as follows:

- Can it be shown that Le Corbusier's art making and ideas about fine and decorative art influenced his architecture?
- What other artists, architects and critics were influential within the same period in advocating for a synthesis of the arts and architecture?
- If it is assumed that there is a co-relationship, then, using Ronchamp as a case study, in what ways are Le Corbusier's art and architecture mutually influential or symbiotic?
- Why did Le Corbusier consider achieving a symbiosis between art and architecture to be necessary to his practice?
- Why is an appreciation of the symbiotic nature of Le Corbusier's art and architecture important to an understanding of 20th century architecture?

The research contributes to the general understanding of Le Corbusier's design aesthetic by examining the architect's beliefs about the symbiosis of art and architecture in general and in his work in particular. The thesis does not involve quantitative research, but rather references current scholarship about Le Corbusier's design aesthetic, within the analytical context of Le Corbusier's own writings and practices as they refer to the intention of the co-existence of art within his architecture. The study has practical application for architects with an interest in the integration of art and architecture. It will also be of interest to students of art history and architectural theory.

The scope of the thesis is those theories, concepts and experiences that enjoined to characterize the symbiotic response within Le Corbusier's work, with emphasis on Ronchamp as an example of this response. As a considerable body of work already exists on Le Corbusier and on Ronchamp, and the architect himself was a prolific diarist and writer, it was possible to draw upon on these sources as research materials and as evidence to support the proposition. The thesis consists of secondary research in the form of an analysis of the works of other critics writing about Le Corbusier, his art and architecture, as well as a review of contemporary thinking about art and architecture during the early and mid-twentieth century. The thesis incorporates art and architectural historical knowledge about the influences, training and experiences that contributed to Le Corbusier's development as an artist and architect. The architect's and others' drawings related to Ronchamp and its site are given a brief, but focused, examination. These texts also enable an appreciation of the development of what have been referred to as the three stages of Le Corbusier's architectural career. Primary research consists of a tour of Ronchamp chapel by the writer to gain an appreciation of the context and impact of the project, including the writer's photographic record of the chapel (Figures). As well, a review of Le Corbusier's sketchbooks was undertaken to trace the development of relevant concepts and theories about art and architecture. Le Corbusier's own writings were considered in determining the factors that contributed to his understanding of the role of art within architecture.

1.4.2. Limitations of the Research

The thesis concentrates on English language translations of Le Corbusier's texts and the work of other critics, artists and architects. It does not examine source material in the original French or other languages. While the thesis examines Le Corbusier's career from his early training in La Chaux-de-Fonds to the completion of Ronchamp in 1954-55, the review of significant architectural pieces is limited to those that contribute to the thesis' premise about the symbiosis of art and architecture. As a consequence, although the thesis defense includes a review of major milestones in the architect's career as a method of providing context for the case study, major works such as Villa Savoye, Unité de Habitation at Marseilles and the architect's urban planning projects are only referenced where such references are relevant to the immediate topic. Similarly, the thesis does not consider, in any comprehensive manner, the influence of factors such as Le Corbusier's interest in Rationalism, Communism, social planning experiments or other historical developments during the time span of his career, unless such examination is necessary to support the

proposition. Hence, rather than a social historiographical approach to the subject matter, the thesis assumes a broader art historical and art theoretical context. This approach is intended to focus upon existing sources, including the architect's own descriptions, to determine whether there is evidence of an intent to express art and architecture as symbiotic within Le Corbusier's work. Further, while investigations of a synthesis of art and architecture in Le Corbusier's work are existent, this thesis brings together aspects of the architect's total body of art production in support of the premise that his investigations transgress synthesis and approximate symbiosis. This distinction is perhaps most evident in contrasting the Phillips Pavilion (1958), in which ideas of art and architecture are integrated, through the use of sound, images, design and color, but function autonomously, with Ronchamp chapel, in which the art and architecture are interdependent, functioning in a mutually subordinate relationship. It establishes a basis for further explorations into the significance of Le Corbusier's art making to his architectural aesthetic.

CHAPTER II

LITERATURE REVIEW

2.1 Related Research

The literature review will examine selected writings about the function of art within architecture, and more particularly in Le Corbusier's architecture, in support of the proposition that art and architecture are mutually interdependent. Other literature relevant to art and architectural history will be considered where they contribute to the overall arguments presented in the thesis. Issues relevant to the proposition include the common understanding among critics of the meaning and purpose of a synthesis of art and architecture; other explanations of the impetus for the development of Le Corbusier's design programme at Ronchamp that challenge the contention the chapel epitomizes the symbosis of art and architecture; and theories about Le Corbusier's pursuit of a formal language of architecture that suggest that Ronchamp was the outcome of the architect's research interests, rather than an innovation in the integration of art and architecture.

In order to establish the parameters of the literature review, it is important to identify those documents that will not figure significantly or at all in the review and the rationale for omitting them. Since the literature review is limited to selected writings that are specifically relevant to the research question, it will include those major critics who contribute to the component issues of the symbiosis of art and architecture or contribute in some other contextual manner to the understanding of the hypothesis.

Documents that contribute to the general appreciation of the design epoch, such as those on Cubism by the authors Bois (1997), Childs (2000), Fry (1966), Metzinger (1966), Picasso (1966), Poggi (1992), and readings on 19th century thought on the synthesis of art and architecture, including those by Belcher (1887), Dougherty (1982), Giovanni (1982), Powys (1937), Rosenberg (1963), Sonstroem (1982) and Van Brunt (1893), are peripheral to the hypothesis and, as such, function as background reading, but do not necessarily contribute substantively to the premise of the thesis.

Publications of a general nature, such as Janson and Janson (2004) and Norberg-Schulz (1975), and articles on specific topics, such as Purdy (1977), Tafuri (1976), Turner (2000) and Walden (1970), have been consulted

primarily for the purposes of gaining a broad understanding of the context of 20th century art and architecture, with the consequence that they do not figure in the thesis in any substantive manner. A number of art dictionaries have also been reviewed with similar intent and will not be detailed in this literature review. As well, collections of Le Corbusier's thoughts, such as by Guiton (1981), that do not contain critical analysis have been utilized as primary source material, but excluded from the literature review as their discussion would be irrelevant to the intent.

Some more specific documents have been consulted for the purposes of providing a social historiological perspective to the thesis. While this scholarship – including Anson (1948), Barrie (1996), Dahinden (1967), Jackson (1955) and Sovik (1973) – does not contribute particularly substantively to the thesis, it does inform the appreciation of various aspects of the social environment in which Ronchamp was positioned.

While pertinent documents related to Purism are reviewed in this section, scholarship related to Le Corbusier's associates, Fernand Léger and Amédéé Ozenfant, although referenced at length in the bibliography but less so in the thesis, is not included, as it is relevant only for the purposes of illuminating Le Corbusier's thought in relationship to the Purist movement. For this reason, these documents, which include Buck (1982), De Francia (1969, 1983), Golding (1970), Herbert (1997), Kuh (1953), Richards (2003), Verdet (1970), as well as Léger's and Ozenfant's own writings, are not considered in the literature review. However, relevant criticism on documents, such as those by Brooks (1997), Turner (1977) and Sekler (1977), that detail Le Corbusier's training and early career is incorporated as appropriate.

Scholarship that contributes to an appreciation of Le Corbusier's design aesthetic, but is less generally related to the hypothesis, such as that of Wittkower (1975); publications that contain limited primary or secondary research, including Darling (2000) and Pawley (1970); or publications that focus almost exclusively on the physical form, such as Baker (1994) and Boesiger and Girsberger (1999), are omitted as redundant for the purposes of the literature review.

2.1.1 Review of Selected Writings and Their Relevance to the Research Question

Charles-Edouard Jeanneret was born in 1887 in the Swiss watchmaking town of La Chaux-de-Fonds. He assumed the name Le Corbusier in 1923 to distinguish his work as an architect from his work as a painter, for which he continued to use Jeanneret. Le Corbusier began his career as an apprentice watchcase engraver, graduating to the local industrial art school at the age of twelve. He was simultaneously enrolled in evening courses at the Ecole d'Art, where he transferred to the full-time, four-year program in 1902. Though not yet 13, Le Corbusier was advised by his drawing teacher, Charles L'Eplattanier, to study architecture, sculpture and mural painting.[18] Le Corbusier switched to architecture in his fourth year as a consequence of his inability to continue in engraving because of his ailing eyesight. L'Eplattanier was influential in Le Corbusier's choice of architecture – it was he who initiated the Cours Superieur d'Art et decoration at the Ecole d'Art in October 1905, which Le Corbusier attended. Le Corbusier obtained his first architectural commission, the Villa Fallet, in November 1905, while enrolled in the Cours Superieur. He also undertook the design of a music room at the Villa Matthey-Doret (1905-6) and, in 1906, with his fellow students, redesigned and built the interior of the Protestant Chapelle Independante.

While it would be possible to dwell at length on Le Corbusier's pre-Ronchamp career, it is sufficient for this thesis to note those events that are significant to Le Corbusier's development as an artist and an architect. They include his various travels between 1908 and 1911, during which he witnessed the vernacular architecture of the Mediterranean and the splendor of the Acropolis; brief apprenticeships with leading modernist architects August Perret (1908) and Peter Behrens (1911), during which time he became familiar with the use of reinforced concrete in construction; and his 1917 parting with L'Eplattanier, his initial teacher and mentor, to pursue an architectural career in Paris. Le Corbusier's increasing obsession with painting is apparent by his involvement, with Ozenfant from 1918 through 1925 and with Léger between 1920 and 1925, in Purism, possibly inspired by the fact Le Corbusier had few commissions between 1917 and 1923; the most notable of these being a workers' housing project at Troyes in 1919 and the Maison Citrohan (1921). Le Corbusier's involvement with regional syndicalism during the 1920s is important to understanding his aim of achieving an ideal society through his architecture and his belief in a bureaucratic, business, scientific and cultural elite that would, "through beneficient acts," fulfill his dream of cities of skyscrapers. This theme is not pursued in this thesis, as it is extraneous to the argument. The volume of Le

[18] In Le Corbusier, we find traces of L'Eplattanier. L'Eplattanier had studied painting, sculpture and architecture at the Ecole des Arts Decoratifs and Ecole des Beaux Arts in Paris. As Le Corbusier was to do, L'Eplattanier travelled broadly after leaving school. As Le Corbusier's almost exclusive teacher of decorative design and ornamental composition, L'Eplattanier shaped his student largely in his own image.

Corbusier's architectural work between his Purist buildings of the 1920s and pre-Ronchamp is presented throughout the thesis, as it is pertinent to the topic. As Le Corbusier's break with Purism in the late 1920s, urban planning experiments during the 1930s and 1940s and resolution of the relationship of man to nature during the 1930s as a consequence of his pursuit of the *objets à réaction poétique* all contributed to the design aesthetic he evolved with Ronchamp, they are referenced in the body of this thesis.

The literature review considers evidence presented by other scholars and critics important to an understanding of Ronchamp within the context of two major themes: the function of art in architecture and the function of art in Le Corbusier's architecture. Other writings of significance are discussed where they contribute to the hypothesis. The literature review is deliberately limited to those issues involved in the examination of symbiosis in Le Corbusier's art and architecture and is not intended to cover the broad range of interests Le Corbusier pursued prior to his involvement with Ronchamp, the case study that is the subject of this study.

2.1.1.1 Function of Art in Architecture

The dilemma of modernist architecture is what constitutes art, which, then, determines how art functions within the context of architecture. Central among critics who wrestled with this definition is architecture professor Joseph Hudnut, who, writing from a humanist perspective in his 1945 treatise, "The Post-Modern House," argues that space, texture, structure and light are the eloquent elements of a new art, in contrast to the stiff formalism of architectural styles that merely punched holes in walls to emit light. At a preliminary glance, Hudnut agrees with Le Corbusier, in that the latter was also concerned with dematerialization as a necessary element of the transparency of the window wall or "walls of light."[19] However, Hudnut considers painting and sculpture to be "harmonious accessories," while deriding the conformity made possible through industrial processes of standardization – the escape from the control of art arising from the inculcation of the individual to mass culture.[20] While Hudnut was writing about domestic architecture, his point of view that technique has insufficient utility as an expressive element and that progress is not to art as art is to emotion has significance for Ronchamp because it encapsulates the concept that the art is in the *poésis*, not the technique. This is contradictory to the premise of this thesis, which argues that art and architecture, as

[19] As cited in Beatriz Colomina, "Where Are We?" Architecture and Cubism, eds. Eve Blau and Nancy J. Troy (Cambridge: The MIT Press, 1997) 157.
[20] Joseph Hudnut, "The Post-Modern House," Architecture Culture 1943-1968, ed. Joan Ockman (New York: Rizzoli International Publications, 1993) 76.

evidenced in Ronchamp, are mutually influential, however, Hudnut does capture the disillusionment Le Corbusier is known to have experienced, post-Purism, with the beneficience of the machine culture as an arbiter of architecture.

Christopher Green, in a variety of works, including "The objet à réaction poétique, the figure and eroticism in painting" (1987), notes the architect's tendency to group objects in a sculptural way in paintings such as La Cheminée (1918), which supports the contention that Le Corbusier transferred his ability to think plastically to his architecture. Green also notes that, while the architect shared an interest with Léger in *objets à réaction poétique*, Le Corbusier ascribed a deeper meaning to their significance in the individual's response to the "merest natural fragment."[21]

Green believes the groundwork for the synthesis of the arts was laid between 1925 and 1939, with Le Corbusier's painting exhibitions (Boston, London, Paris and Lyons) and pieces such as Unité d'Habitation, Marseilles, as well as the subsequent Ronchamp and Chandigarh commissions, which represented the exploration of a new relationship between himself and nature and his art and design work.[22] Further, Green presupposes Le Corbusier's secretive pursuit of his painting, which he was able to separate from the commercialism of his architectural career, allowed him to explore his interior responses to nature. Although this viewpoint is engaging and the earlier date corresponds with Le Corbusier's first Purist commissions, it seems apparent that the architect was already engaged in this endeavor as early as his first Swiss villas. Green agrees that Ronchamp is analogous to sculpture and comments, in "The architect as artist" (1987), that the handling of space was pivotal to his appreciation of architecture as art.[23] Green further suggests that art was Le Corbusier's point of contact between "the sublime chaos of nature and the structure of human concepts, between sensation and idea," or as Green expresses it, the divergence between "the free manipulation of form and the rational analysis of function and structure."[24] Green differs from this writer in ascribing the concept of synthesis to Le Corbusier's work, while this paper will argue for a symbiotic interpretation of projects such as Ronchamp.

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[21] Christopher Green, "The objet à réaction poétique, the figure and eroticism in painting," Le Corbusier: Architect of the Century, exhibition catalogue, eds. Michael Raeburn and Victoria Wilson (London: Arts Council of Great Britain and authors, 1987) 126.
[22] Green, "The objet" 117.
[23] Christopher Green, "The architect as artist," Le Corbusier: Architect of the Century. Eds. Michael Raeburn and Victoria Wilson, exhibition catalogue (London: Arts Council of Great Britain and authors, 1987) 110.
[24] Green, "The architect as artist" 111.

Sigfried Giedion, commenting on the 1947 CIAM Bridgewater questionnaire on "The Impact of Contemporary Conditions Upon Architectural Expression" ("Our Attitude Towards Problems of Aesthetics," 1947), summarizes the dilemma of art's function within architecture by referencing sculptor Barbara Hepworth, who advocates for collaboration between architects and sculptors. While Giedion's remarks are made within the context of presenting the questionnaire to CIAM's membership, they warrant consideration since they represent Giedion's beliefs about the efficacy of painting and sculpture in invigorating architecture, such as when he comments on the inadvisability of divorcing architecture from urban planning and its sister arts.[25] This commentary is consistent with Le Corbusier's own thinking during the 1940s. What is interesting about this discourse is Giedion's discomfort with rationalism, quite unlike Le Corbusier's references, during his Purist period, to the primacy of the machine object in art and architecture. Giedion sees the demise of rationalism as the turning point in the reclamation of aesthetics as an architectural value. It is in this appreciation of the consequence of art as a function of architecture, and as an expression of the contemporary mood, that Giedion's work is relevant to this thesis, although, like Green, Giedion references a synthesis of the arts, as opposed to their mutual interdependence, as this paper will posit is present in Ronchamp.

Beatriz Colomina, in "Where are We?" (1997), suggests another possibility, which is that architects are overly concerned with the inclusion of art in architecture - more particularly of Cubist art which, despite the protests of critics such as Von Moos or Peter Collins, she suggests is so firmly associated with the domestic box that it has become part of the folklore of modern architecture history. Colomina positions her argument in the context of Cubism, suggesting that references to Cubism in architecture generally relate to Le Corbusier's work (such as the Villa Stein-de Monzie). While she concedes that modernism and Cubism share principles manifest in their urban experience, she argues it is the client who fosters architecture as art by commissioning it thusly. She points out that many of Le Corbusier's clients, such as Raoul Le Roche, were art collectors and that, for them, modern architecture functioned "as a 'frame' for cubist and purist paintings," although Colomina does comment that Le Corbusier found the Villa La Roche (1925) too picturesque and, hence, perhaps too Cubist.[26] Further, Colomina argues that because modernist architecture was deliberately disorienting, it was akin to the cinema - in constant motion, characterized by seemingly weightless picture (glass) walls reminiscent of a movie screen that display an array of moving images viewed from the inside out and as an exterior image captured upon the glass. Following Colomina's thought, it must

[25] Giedion, "Our Attitude" 35.

be then, that by modernizing the painting's frame (the architecture), the Purists positioned architecture as the corollary of other media, including art. This would be consistent with Ronchamp if one considers it to be what Pauly refers to as a total work of art, in contrast with architecture as independent from art. This thesis argues that because art and architecture are symbiotic at Ronchamp, they are corollaries, rather than art an accessory to architecture.

Polish CIAM member Helena Syrkus, in advocating for the adoption of Le Corbusier's Athens Charter at the seventh annual CIAM meeting, argues in the 1949 article, "Art Belongs to the People," that art must be populist, responsive to human needs and uplifting. Syrkus condemned his machine for living and the eclecticism of academics (Gropius seems a likely target) who dismiss the spirit of the past. Thus, she chastised CIAM for making a "fetish" of the raw bones of construction, rather than dressing it in "fine muscles and a lovely skin."[27] Her comments are prescient in that they predate Le Corbusier's organic period, although it is well accepted that Le Corbusier's comment about a machine for living were misinterpreted. Ronchamp is consistent with this new aesthetic, in that the interdependence of the art and architecture achieve a populist appeal that seemingly responds to the spiritual aspirations of the chapel's adherents.

Bruno Reichlin's "Jeanneret-Le Corbusier, Painter-Architect" (1997) posits that Le Corbusier's Purist architecture was characterized by a multiplicity of readings engendered by the shared outlines familiar to his paintings of the same period. Reichlin's treatise is useful to an appreciation of Purism, in that he addresses the manner in which Le Corbusier combines vertical and frontal space to achieve perspectival illusions that are disruptive of the reassuring "spatial constructs" familiar to representational art, which Le Corbusier criticized as providing merely "an accidential view of objects."[28] He suggests Le Corbusier used similarly antiperspectival devices, such a horizontal strips of windows, in his architecture to fracture the centrality of the space. This has meaning for Ronchamp, since Le Corbusier made similar use of ambiguous space (spatial interference) to establish the structure's non-linearity, such as in the use of the concave south wall to establish a collection receptacle for pilgrims on the exterior and to establish a light tapestry on the interior. Further, Reichlin argues it is the apprehension of the whole, the *plan libre*,

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[26] Colomina 155, 159.
[27] Helena Syrkus, "Art Belongs to the People," Architecture Culture: 1943-1968: A Documentary Anthology, ed. Joan Ockman (New York: Rizzoli International Publications, 1993) 121.
[28] Bruno Reichlin, "Jeanneret-Le Corbusier, Painter-Architect," Architecture and Cubism, eds. Eve Blau and Nancy J. Troy (Cambridge: The MIT Press, 1997) 204.

that is necessary to comprehend Le Corbusier's architecture.[29] This supports the thesis' central argument that Ronchamp must be understood in terms of a symbiotic relationship between art and architecture.

2.1.1.2 Function of Art in Le Corbusier's Architecture

Those critics who comment about the function of art in Le Corbusier's architecture display a diverse array of opinions about the motivations for Ronchamp, however, they generally coalesce around the belief that the chapel represents a synthesis of art with architecture.

Remarking, in "Mannerism and modern architecture" (1978), on Le Corbusier's rationalist leanings, Colin Rowe suggests that Le Corbusier constructed mathematics and geometry as a counterpoint to the Beaux Arts and the theory of the 1900s, but that his ambiguity is evident in his description of the eternal values of architecture based on Platonic principles, contrasted to the significance of the architect's intervention through "the masterly, correct, and magnificent play of masses brought together in light."[30] His point that Le Corbusier is incapable of delineating a reaction to sensation is well taken, as this deficiency contributes to the viewer's sense of ambiguity surrounding the purpose of and response to buildings such as Ronchamp.

Daniele Pauly, writing in "The Chapel of Ronchamp as an Example of Le Corbusier's Creative Process" (1987) and Carlo Cresti, author of Le Corbusier (1969), concur that Ronchamp is the outcome of Le Corbusier's research, while Cresti argues that even Le Corbusier's Purist architecture possessed "plastic-formal 'turbulences'."[31] Cresti intimates that analyses that suggest Ronchamp's plasticism is a destructive manifestation of mannered formalism, an argument perhaps directed at Stirling, are flawed because they neglect the possibility that the architecture may be a resolution of the quest for "interconnecting and modulated relationships" among the components of his vocabulary.[32] This text supports the thesis that the elements of Ronchamp are arranged in the particular manner they are because of their symbiotic function.

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[29] Reichlin, "Jeanneret" 210.
[30] Le Corbusier as cited in Colin Rowe, "Mannerism and modern architecture," The Rationalists: Theory and Design in the Modern Movement, ed. Dennis Sharp (London: Architectural Press, 1978) 183.
[31] Carlo Cresti, Le Corbusier (London: The Hamlyn Publishing Group Limited, 1970) 39.
[32] Cresti 39.

Pauly's contribution to the research on Ronchamp is to establish the chapel as a temple for the synthesis of the arts - the outcome of Le Corbusier's research into fundamental concerns about the plastic arts and the "logical conclusion" to his previous forms, consistent with other organic architecture of the 1950s. This latter argument is weakened by the lack of significant discussion of comparative pieces, although she infers that his 1920s still-life paintings were the stimulus for his interest in organic forms. Although implied, because she has not made specific reference to the concept, it is not clear whether Pauly's references to Ronchamp as a total work of art are consistent with the concept of *Gesamtkunstwerk*, which can be traced to the German Romantics and the Wiener Werkstätte (Vienna Workshops) of Josef Hoffmann (1870-1956) and Koloman Moser (1868-1918) and which posited that all of the arts could be unified in the design to embrace every aspect of the building or environment. Regardless of whether that is the case, Pauly's argument about the chapel representing Le Corbusier's effort to achieve a synthesis of the arts, while valid within its own context, is distinct from this thesis' contention that the structure is symbiotic. Irrespective of that distinction, the writer of this paper supports her contention that Ronchamp represents the translation of poetic elements into the "architectural oeuvre."[33] Further, Pauly's suggestion that Ronchamp's unstructured forms represent the irrationality of the religious and spiritual realms seems plausible.

Like Cresti, Pauly considers Ronchamp to be multi-valenced, borrowing from the architect's store of references, personal memories and the language of technology, such as airplane wings and dams. Although her arguments support the argument developed in this thesis that the design is essentially intuitive, she notes that Le Corbusier researched the site, its importance as a place of pilgrimage, the significance of the Holy Virgin to the structure, Catholic ritual and religious art before formulating the final plan. Her proposition, developed through a reading of Le Corbusier's writings, that the architect internalized visual imagery witnessed during his personal and business travels, transcribing those images onto his art and architecture, as in the impressions of diffused/restrained light he brought to the design from his 1931 trip to the Algerian desert, is consistent with the themes presented in this thesis.[34] Pauly also draws allusions between Ronchamp and his sculptural pieces, such as Ozon, while comparing the blocks of color in the south windows to Mondrian-like mark making. While Pauly is more sympathetic to the poetic aspects of Ronchamp than other writers, her suppositions are well supported by references to primary source materials and, as such, are accepted as generally valid within the context of architectural scholarship. This thesis

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[33] Pauly, Le Corbusier 127.
[34] Daniele Pauly, "The Chapel of Ronchamp as an Example of Le Corbusier's Creative Process," Le Corbusier, ed. H. Allen Brooks, trans. Stephen Sartarelli (Princeton: Princeton University Press, 1987) 133.

extends her insights by suggesting that Ronchamp is representative of the symbiotic nature of Le Corbusier's late architecture - that the art is integral to the architecture and that the piece functions as a consequence of the interdependence of the art and architecture, rather than the art functioning as a constituent of the whole.

Robert Jordan (Le Corbusier, 1972) presents a different explanation for Ronchamp, which is that it is a timeless architecture that, rather than being based on folkloric references, represents the combination of various modern techniques. Jordan remarks on the "almost primaeval" nature of the structure and considers it primarily peasant architecture by virtue of its isolation. Jordan compares Ronchamp to a sculpture, as do, among others, Pauly and Frampton, but notes that the structure distills all of the religions and architectures (referencing particularly the Greek, Roman and Byzantine) with which Le Corbusier was familiar. Jordan's observations are consistent with those of Pauly and those other commentators who are influenced by the poetic quality of the building, however, he dismisses the suggestion that Ronchamp's design was solely influenced by folkloric architecture. This observation is useful in that it broadens the scope of the argument, consistent with the contention in this thesis that while the folkloric influence is apparent, the design is primarily a sculpted form.

Stanislaus von Moos' commentary is probably the most closely aligned with the argument put forward in this thesis. Like the writer, he is impressed by the multifarious influences that were available to inform Ronchamp. Von Moos argues that, as is the case on those occasions in which Le Corbusier's forms seem inappropriate to the task, the forms were developed fairly independently of the purpose that they serve.[35] It is conceivable that his approach to the artistry of the endeavor overrode the functionalist programme – the Pessac workers' houses come to mind, developed in the spirit of social reform but inappropriate to the pragmatic needs of the occupants. While von Moos also traces the form to Le Corbusier's 1931 African travels, he suggests that since the architect begins from a stance free of prejudices about religious architecture – this being his first realized religious commission – or about the shared function requiring a design similar to other chapels, Ronchamp can be positioned with Le Corbusier's other secular work. Von Moos argues that, as there is no language of forms consistent with established social functions, cultural meanings or "institutionalized traditions," this accounts for the uniqueness of the form.[36] He suggests Le Corbusier rejected the clean lines of the international style for the violent masses of raw concrete, which, as in Unité d'Habitation, Marseilles, assumed the proportions of a monumental sculpture. Von Moos refers to Le Corbusier's

[35] Stanislaus von Moos, Le Corbusier: Elements of a Synthesis (Cambridge: MIT, 1980) 101.

1948 article, "Unity," in which he states his intention to achieve consonance among "the various manifestations of creativity" while enabling architecture, painting and sculpture to remain autonomous, as evidence Le Corbusier was striving for a synthesis of the arts.[37] Further, von Moos suggests that painting mediated between Le Corbusier's public and private lives, serving as a integral accompanient to the exploration of the subconscious and that his abandonment of Purist principles in the 1930s led to the cognition that art was an "intuitive dialogue" with nature.[38] Von Moos' arguments seem the most considered of those speculations about Le Corbusier's motivations with Ronchamp and about the mediation of his painting and sculpture with his architecture. While the current thesis concurs with von Moos' viewpoint, it furthers the discourse by suggesting that Ronchamp extends the concept of consonance to one in which the art and architecture are essentially integral, preferencing the concept of symbiosis to von Moos' synthesis.

The other critic who will be examined in this literature review is Stephen Gardiner (Le Corbusier, 1974), although the writer is of the opinion that this document reflects inadequate scholarship due to the paucity of the references. Gardiner argues that Le Corbusier was an enigma in that while he thought in visual images, like a painter or sculptor, because he was simultaneously an engineer (sic) and a painter, he was able to re-invent architecture. It is his opinion that Le Corbusier's buildings are, consequently, autobiographical.[39]

Gardiner argues that Le Corbusier's rediscovery of Classical principles and an intense curiousity about "the inexhaustible domain of Nature" inspired Le Corbusier to engage in the pursuit of an indigenous architecture specific to place and location.[40] Ronchamp is consistent with this theme by virtue of responding to the constraints and possibilities of the sense of place – it is influenced by regional architecture and building materials, as seen in the use of water spouts similar to those of Venasque's church, while embracing forms from nature for its context.[41] Forms from nature, such as tree trunks to enclose the view, are adapted as a source of architectural innovation, enabling the architecture to assume any shape that meets its aesthetic and pragmatic objectives, much as Villa Savoye exposes Le Corbusier's desire for fresh air and sunlight by integrating its exterior passages (sun terrace, entrance) with the

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[36] Von Moos 104.
[37] Von Moos 280.
[38] Von Moos 284.
[39] Stephen Gardiner, Le Corbusier (London: Wm Collins & Sons Co Ltd, 1974) 24.
[40] Gardiner 26.
[41] Gardiner 25.

interior (ribbon windows that encompass the idyllic view).[42] Thus, he suggests, Ronchamp's walls intimate the "softness, roundness and changing contours of nature."[43] Gardiner concludes that the sexualized forms of female nude bathers find their correspondence in Le Corbusier's architecture and it would seem that Le Corbusier's own references to male and female architecture support this proposition.[44]

Gardiner argues that Le Corbusier was constrained by the cube and the machine until he was able to comprehend their meaning, which enabled him to be freed of their influence.[45] He also suggests, like Frampton, that Le Corbusier's late period architecture, such as Ronchamp, is influenced by the folk architecture – the "irregular jumble" of Greek village life - and by the complexity of Classical Greek design that belies the "simplicity of the natural frame."[46] The concept of nature as frame is endemic in his suggestion that Le Corbusier personified the architecture by enabling it to be commanded by the landscape that, because it was harmonious with the design, "enlarged" its magnificence. This is a more complete explanation of the concept of the acoustical landscape than revealed in some other literature. Although the thesis won't particularly explore the concept of personification, it is a plausible contention that Le Corbusier assigned human-like attributes to the landscape and architecture, a suggestion supported by Pauly when she remarks about the chapel's towers as listening ears.

A brief mention will be made of Charles Jencks' Le Corbusier and the Tragic View of Architecture (1975), which suggests that Le Corbusier's post-WWII aesthetic considered architecture to be sculpture in plastic means.[47] Jencks refers to the architect's Oeuvre complete (1946-52), in which Le Corbusier comments on his desire to use polychromy and the contrast between crudity and finesse to stimulate reaction, as evidence of his intent. Jencks references the "violently sculptural" qualities of Unité d'Habitation, Marseilles, as Le Corbusier's departure from the idealistic, flattened plane of the International style. In a similar manner, Jencks suggests Ronchamp represents Le Corbusier's realization of ineffable space. However, he is critical about what he refers to as Le Corbusier's fiction regarding ineffable space and visual acoustics. The writer of this paper agrees with Jencks that, in the case of Ronchamp, Le Corbusier may have developed the form, then worked out the inter-relationships that corresponded with the concept of ineffable space. This is consistent with Jencks' comment that Le Corbusier strove to develop

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[42] Gardiner 26-7.
[43] Gardiner 35.
[44] Le Corbusier describes Unité d'Habitation's (Marseilles) external pillars as: "...like the strong curvaceous thights of a woman". As cited in H. W. Janson and Anthony Janson, History of Art: The Western Tradition (Upper Saddle River, N.J.: Pearson Education, 2004) 910.
[45] Gardiner 26.
[46] Gardiner 37-8.

new architectural languages throughout his career, beginning with his concerns with geometric forms from nature during the period of his Swiss Villas at La-Chaux-de-Fonds to his involvement in Purism in the 1920s, his concerns with urban planning in the 1930s and 40s and his evolution of a Brutalist form at Ronchamp in the 1950s. In this context, it would seem more probable that Le Corbusier's concern with the vocabulary of architecture might lead him to evolve the form, then determine the syntax that suited the form.

2.1.1.3 Other Writings

Kenneth Frampton, writing in Le Corbusier (2001), asks whether the Purist villa, which preoccupied Le Corbusier with questions of standards and universality, was an industrial product or "a hand-crafted artifact," made to resemble the "naked, polished steel" appearance of the machine product, but finished in an artisan's stucco. This dilemma is most troublesome in structures such as the Villa Stein de Monzie and the Villa Savoye and reiterates the essential compromise: the divergence between Le Corbusier's commentary and his achievements.[48]

Further, while Frampton agrees that the Ronchamp's form is related to the whitewashed tradition of Mediterranean vernacular architecture, he argues that the chapel, and the Pavillon des Temps Nouveaux, are the transformation of the nomadic tent and the Hebrew Temple in the Wilderness. The Temple, which represents the sacred, is translated into the "secular inverted tent" of the Pavillon, which Frampton refers to as the profane, then re-created as Ronchamp, which acts as a metaphor for the return of the tent to its sacred state.[49] Thus, the design can be seen as a response to spiritual concerns or the manipulation of the spiritual within the pretext of a New Brutalist idiom, rather than a tectonic response to the *objets à réaction poétique.*

Frampton traces the "profound change" evident in Le Corbusier's post-Purist phase of the 1920s, as evidenced by such paintings as Composition avec une poire (1929) in which he combines object-types with organic elements (*objets à réaction poétique*) such as driftwood and shells, to the influence of Léger. Frampton suggests Le Corbusier and Léger were equally engaged in the recording of "organic forms eroded by nature and time."[50] Further, he posits

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[47] Charles Jencks, Le Corbusier and The Tragic View of Architecture (London: Allen Lane, 1975) 137.
[48] Kenneth Frampton, Le Corbusier (London: Thames and Hudson, 2001) 77.
[49] Frampton 172.
[50] Frampton 205.

that Le Corbusier's post-Purist paintings served as the inspiration for a "myriad of otherwise unimaginable formal-cum-methaphorical devices" in his architecture.[51]

Frampton also considers Le Corbusier's involvement with Greek architect/musician Iannis Xenakis, who worked for Le Corbusier between 1947 and 1957, to be significant of his "growing preoccupation" with the concept of creating a total work of art, which Frampton suggests he achieved with the Philips Pavilion (1958). During the lapse between the Pavillon des Temps Nouveaux in 1937 and the Philips Pavilion, Le Corbusier underwent a tectonic transformation, evidenced by the inclusion of design devices such as the double curvature used at Ronchamp and again at the Philips Pavilion. Rather than a reference to his theories about *objets à réaction poétique* (Le Corbusier suggested he was inspired by a shell he found on a New York beach), Frampton sees the "complex curvature" of Ronchamp's roof as an extension of the architect's "hyperbolic space-frames" from his 1936 Liège and San Francisco exhibition pavilions. That Le Corbusier employed a common aeroplane modelling techique to create a wire model of Ronchamp suggests to Frampton an aerodynamic reference, which serves to support Pauly's comments about the roof as resembling an aeroplane wing.[52] Frampton also suggests a marine metaphor – the roof as the hull of a ship, keel positioned in the centre, this being a tectonic reference to the "ancient conjunction of church and ship."[53] Frampton argues that the "oscillation between the nautical and the aeronautical" is part of an intrinsic pattern in Le Corbusier's work, which shifts between the aquatic origin of all life and the ultimate transformation of this aqueous state into the aerial, a methamorphosis paralleled in the diurnal cycle of evaporation and condensation Le Corbusier witnessed during his flights over the rainforests of Latin America.[54]

This interpretation of Le Corbusier's work, particularly with regard to the references to the symbolism of marine life and the aerial, which would be well served by further scrutiny to determine their efficacy, is among the more intriguing in the literature. While the thesis will not particularly explore many of the concepts presented by Frampton, they bear referencing in that they broaden the appreciation of the breadth of interests that may have contributed to Ronchamp's design aesthetic.

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[51] Frampton 213.
[52] As cited in Frampton 172.
[53] Frampton 173.
[54] Frampton 174.

The other writer who is central to the discussion of Ronchamp is James Stirling, whose commentary, "Ronchamp: Le Corbusier's Chapel and the Crisis of Rationalism," (1956), disdains Ronchamp as having little intellectual meaning, stimuli or analytical context, beyond its obvious visual appeal to local residents, which Stirling suggests may be more indicative of pride of place than of any achievement by Le Corbusier.[55] While Stirling concedes Ronchamp is likely "the most plastic building" in modern architectural history, he criticizes the diverse styles that emerged in the 1940s and 50s as originating from an effort to fuse Art Nouveau and late 19th century engineering.[56] Stirling raises an interesting point about the paramountcy of the site in many of Le Corbusier's works, notably as seen in Ronchamp's primacy at the point of four horizons, but also noting the use of pilotis to elevate the form where the siting is insubstantial. He compares the subdued lighting to Baroque churches, where no one element dominates as a result of the diffusion of light, however, reflects that European architects sought inspiration from folk art and that this tendency, as far as Le Corbusier is concerned, may be the result of the stockpiling of his vocabulary "with plastic elements and *objets trouvés* of considerable picturesqueness."[57] Stirling is critical of whether architecture such as Ronchamp, that appears to draw on folkloric elements, contributes to the progression of the Modern movement or whether the project is simply a "mannered piece" of what he terms conscious imperfectionism.[58] This is the most critical of the writings on Ronchamp and possesses some privileged credibility because of Stirling's pre-eminent role in British modernist architecture. The supposition that Le Corbusier's architecture has stalemated by virtue of the use of stored imagery is weak, however, in that the visual pretext is predominant in many architects' work and Ronchamp represents a departure from Le Corbusier's design idiom of the 1920s and 30s.

2.2 Implications of the Selected Writings for Proposed Study

This thesis will reference the major writings discussed in the literature review as they are appropriate to the context of this paper. While many of the writings are supportive of the point of view of this paper, the thesis will explore the concept that Le Corbusier's art and architecture, as seen at Ronchamp, are actually symbiotic, in that they are mutually interdependent, as opposed to the concept that his art and architecture exist in a state of synthesis, which infers a combining of singular components into a cohesive whole, as so many of the authors reviewed assert.

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[55] James Stirling, "Ronchamp: Le Corbusier's Chapel and the Crisis of Rationalism (1956)," Le Corbusier in Perspective, ed. Peter Serenyi (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1975) 66.
[56] Stirling, "Ronchamp" 64.
[57] Stirling, "Ronchamp" 67.
[58] Stirling, "Ronchamp" 67.

CHAPTER III

SOURCES AND VIEWPOINTS

3.1 Introduction

In his art making, Le Corbusier found the expression of the "pure creation of the spirit" that enabled him to innovate in his architecture.[59] Le Corbusier was involved in some of the major avant-garde art movements of the early 20th century. He participated in professional debates about the synthesis of art and architecture that, along with his own research, refined his perspective on the relationship of art to architectural production. Besides his personal sketchbooks, of which two volumes of the four-volume series will be considered here, he was involved in such media as painting, sculpture and ceramics and in the founding of Purism (1918-1925), a movement that influenced both his painting and his architecture. These various pursuits contributed to Le Corbusier's understanding of the inter-relatedness, or symbiosis, of art and architecture, as opposed to the mere synthesis of art and architecture.

3.2 Sketchbooks

3.2.1. Sketchbooks

In Towards a New Architecture (1923; 1927), Le Corbusier touches upon the concept of architecture as art, as it contrasts with the practical: "The relationships between [primary shapes] have not necessarily any reference to what is practical or descriptive....By the use of raw materials and starting from conditions more or less utilitarian, you have established certain relationships which have aroused my emotions. This is Architecture."[60] To understand this idea of architecture as a vehicle for art, and art as the creative impetus for architecture, it is necessary to examine the first two volumes of Le Corbusier's sketchbooks, compiled between 1914-1948 and between 1950-1954.

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[59] "Art is this pure creation of the spirit which shows us, at certain heights, the summit of the *creation* to which man is capable of attaining." Le Corbusier, Towards a New Architecture, trans. Frederick Etchells (Oxford: The Butterworth Architecture, 1994) 221-3.

[60] As cited in Frampton 29.

Le Corbusier produced a series of sketchbooks throughout his life and from them one can trace his development as an artist and the stimulus for some of his major projects.[61] The sketchbooks comprise a documentary of people, landscapes (urban and rural), structures and designed objects and forms from nature, which Le Corbusier observed during his personal travels and while employed on various architectural commissions. They include his comments on imagery and events he witnessed, the beginning outlines of the Modulor (an architectural dimensioning system which Le Corbusier developed in the 1940s and 50s), design explorations into areas that interested him, such as the symbology of the open hand, as well as sketches of human bestiary, drawings of the female form and abstracted imagery. The sketches, which in the first two sketchbooks number over 1,600, vary from pencil drawings to pen and ink sketches and some acrylic paintings. The sketchbooks are inconsistently numbered, as Le Corbusier dated many of his sketches some significant time after they were generated. Thus, they are not as reliable as would be preferred, although the publications remain significant evidence of his design interests, influences and research.

The sketchbooks are widely considered to be among the most important documentary evidence of Le Corbusier's development within the Modern movement. Besides this obvious utility, they contribute to social historiography by recording the progression of Le Corbusier's architectural and artistic interests. Françoise Franclieu comments that the late 1920s (and I might add the 1930s) were "decisive" to Le Corbusier's artistic development.[62] Those concepts embodied in the sketchbooks that re-emerge in his architecture are, arguably, representative of design problems that Le Corbusier worked through in the course of resolving his ideas about what will become the symbiosis of art and architecture. Four specific themes found in the sketchbooks will be discussed in terms of the insight they give to Le Corbusier's practice of a symbiosis of art and architecture. The themes are forms from nature, the Modulor, folklore and the symbology of the open hand.

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[61] References to "figure" in this section pertain to drawings in Mary Patricia May Sekler, The Early Drawings of Charles-Edouard Jeanneret (Le Corbusier) 1902-1908 (New York and London: Garland Publishing, Inc., 1977). Material from Le Corbusier's sketchbooks is referenced in the footnotes.

[62] This period was distinguished by the emergence of Le Corbusier's *objets à réaction poétique*. Fondation Le Corbusier, Sketchbooks, Vol. 2, 1914-1918, ed. Francoise Franclieu (London: Thames and Hudson, 1981) 35.

3.2.2 Forms From Nature

One reason for proposing that Le Corbusier's sketchbooks are relevant to his architecture is that they show the progression of the architect's interest in natural forms and the organic. Specific to his grounding in John Ruskin and Owen Jones and his fascination with Taine's Voyage en Italie – Le Corbusier used his travels to explore nature as a source for fine art – the architect exhibited an intense interest in the forms of organic objects, such as shells, roots and crystals, and in physical laws, such as erosion. He incorporated these concepts in the Pavilion de L'Esprit Nouveau (1925), the precursor for his *objet à réaction poétique*, as well as his sculptures of the 1940s and projects such as Ronchamp. Le Corbusier's vision of organic forms as objects to be integrated into his art and architecture, including his early post-Purism designs of 1927-28 and his *carnets* (notebooks) during the 1930s, inspired him to conduct exploratory studies that ranged from the simple articulation of forms to research into their organization and order for the purpose of understanding their poetic content. Further inspired by surrealism, Le Corbusier was able to integrate these organic forms with his Purist principles during the 1930s, establishing a series of graphic and pictorial works dissimilar to his earlier designs. With this appreciation, the gap between the stylistic phases in Le Corbusier's sketchbooks and the genesis of his organic architecture are not problematic – they are consistent with the architect's changing design aesthetic. The biomorphic, organic forms of his late career are presaged in his ongoing dialogues between nature and machine-made objects. The impetus for the adoption of organic forms is present in the changes in Le Corbusier's expressive form that began to evolve around 1926, with the incorporation of *objets `a réaction poetique* into his art and architecture.

Nature figures prominently in Le Corbusier's early sketches. Although some of his community plans (the Unité d' Habitation projects or the contemporary city of three million inhabitants) might be criticized for separating humans from the exterior (when compared to other contemporaneous models, such as the garden city), Le Corbusier had an enduring appreciation of the place of nature within the human landscape. Projects such as the Unité d'Habitation at Marseilles and Ronchamp chapel, which are sited in a manner that positions the occupants within the landscape, expose the relevance of nature to his design aesthetic. Le Corbusier's earliest drawings, which predate his sketchbooks and reflect his readings of Owen Jones and John Ruskin, illustrate his experience of the landscape around La Chaux-de-Fonds, but also motifs copied from Ruskin's and Jones' nature studies.[63] They are consistent

[63] A 1903 pencil and watercolor sketch illustrates this: the enframed flowers and natural grasses bear resemblance to a chapter heading in Ruskin's Modern Painters (1860). The use of enframement itself is peculiar to late nineteenth-

with the teachings of his mentor L'Eplattanier, but also a childhood spent studying nature: "...I have learned how the flowers were, inside and out, the form and colour of birds. I understood how a tree grows and why it keeps its balance even in the midst of a storm. The tree, friend of man, symbol of all organic creation; the trees, image of a total construction...."[64] Thus, the evidence from his sketchbooks and other documents suggests that the biomorphic organicism of his late architecture is a response to his research into building forms, as well as this appreciation of the juxtaposition of "sun, space and greenery" within the architectural programme.[65] By imitating and copying nature, Le Corbusier subsumed nature as an art form whose integration was essential to the architectural event.

Subsequent sketches demonstrate an increasing abstraction and much of his earlier work is omitted. Several 1932 sketches show nature treated as isolated objects – still-lifes – for the formal exploration of volume, silhouette and form.[66] The influence of readings such as Henry Provensal's L'art de demain is apparent in his drawings, which progressed from complex representational studies made during the early years of his training at La Chaux-de-Fonds, at which time he began independent studies in decorative art and showed an interest in Art Nouveau, to an economical simplicity consistent with his interest in geometric forms.[67] This diverse portfolio is seen in Le Corbusier's shift from the ornate sgraffiti of the Jura landscape motifs, like the *sapin* that decorate Villa Fallet (1905-7), to the sparse modernity of Purist structures like Villa Savoye (1931), which embrace nature through devices such as roof gardens and ribbon windows that embrace fresh air and sunlight, exposing the occupant to 'the idyllic world'."[68] Ensuing projects, such as Ronchamp chapel, reveal his interest in nature through forms such as the roof, influenced by a shell Le Corbusier retrieved from a New York beach. These approaches illustrate that Le Corbusier acquired inspiration for many of his design forms from the shapes and relationships he derived from nature.

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century graphics and Art Nouveau. Sekler comments that this design, which appears to be "a straightforward sketch of material from his surroundings" closely resembles the chapter heading from Part VII, "Of Cloud Beauty," in Modern Painters. Sekler also traces his use of enframement to Ruskin's The Elements of Drawing. Sekler 57-8. Ruskin suggested in The Elements of Drawing use of a frame "through which one could see what one could 'legitimately' take into the picture." Sekler 58.

[64] Le Corbusier as cited in Gardiner 29-30.

[65] "A natural form inspires a composition, which is then re-created as an artifact." Fondation Le Corbusier, Sketchbooks, Vol. 1, 25. Remarks to Columbia University students, May 1961.

[66] Sketches 610 and 611, sketchbook C10. Also 534, 558, 567-8, 573-4, sketchbook B9.

[67] Paul Venable Turner, The Education of Le Corbusier (New York: Garland Publishing Inc., 1977) 15.

[68] Villa Fallet was likely inspired by Jones' The Grammar of Ornament, which allowed Le Corbusier to translate forms from nature into decorative surfaces for his Swiss villas. Le Corbusier's preliminary watercolors for Villa Fallet (1905) and the decorative panels on the villa's exterior illustrate how the architect incorporated these repeat horizontal patterns drawn from nature into his architecture. Arts Council of Great Britain 71-2.

3.2.3 The Outline of the Modulor

The earliest outlines of the Modulor found in Le Corbusier's sketchbooks are important to his conceptual ideas about art and architecture because he based many of his designs on a regulating system similar to that used in classical architecture.[69] Le Corbusier developed the Modulor, which he perfected between 1942 and 1955 and of which he made extensive use at such diverse projects as Unité d'Habitation in Marseilles, Ronchamp chapel, the monastery at the Convent of La Tourette, and Chandigarh, as a device to resolve plastic problems.[70] The Modulor is described as "a measuring tool based on the human body and mathematics."[71] Inspired by the Golden Section, but also influenced by similar endeavors by artists such as Michelangelo and Vitruvius, as well as his own research, the Modulor is meant to serve as a guide in ensuring that architecture responds to human proportions, while achieving balance and harmony. Le Corbusier's six-foot figure of a man with an upraised arm is mathematically sectioned to enable architects to determine the human proportions necessary to order and clarify the design, indicative of the evolution of Le Corbusier's interest in *tracés regulateurs* and his *grille des proportions* of 1943 to 1944, developed under the auspices of ASCORAL (*Assemblée de Constructeurs pour une Rénovation Architecturale*), and of his familiarity with Matila Ghyka's 1931 publication, Le Nombre D'Or.

Le Corbusier frequently includes Modulor-like figures in his drawings, seemingly to establish proportion, as in his gallery and day care centre from 1915.[72] Subsequent allusions to the Modulor are evident in sketches that contrast the dimension of volumes compared to the human body. Franclieu relates Le Corbusier's notations in a 1932 sketch of a human figure on a porch to his interest in measurements: "This sketch reveals the architect's search for vernacular or pseudovernacular architecture as a confirmation of the correctness of his dimensions and his ideas on an 'efficient height for the home'."[73] Sketches from 1933 again show this preoccupation and refer to the dimensions 250 and 450, which are similar to those that will be proposed in The Modulor.[74] The Modulor reappears in Le Corbusier's Rio sketchbooks, balancing a peasant's baskets with his crayfish-like arm from 1936.[75] The idea of measurement is also evident when Le Corbusier juxtaposes a standing man with the outstretched limbs of a tree in a

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[69] Franclieu suggests sketches 588, in which Le Corbusier refers to the numbers 2.20 and 4.50, and 587 "pre-figure" the architect's efforts to relate architecture to the ideal human figure. Fondation Le Corbusier, Sketchbooks, Vol. 1, 25.
[70] Le Corbusier, The Modulor 1 and 2 (Cambridge: Harvard University Press, 1980) 35.
[71] Le Corbusier, The Modulor 1 and 2 55.
[72] Sketches 115 and 116, sketchbook D16.
[73] Sketch 588, notebook B9. Fondation Le Corbusier, Sketchbooks, Vol. 1, 25.
[74] Sketches 670 to 671, sketchbook C10.
[75] Sketch 718, sketchbook C12.

sketch of uncertain origins.[76] A series of 1945 drawings, completed while crossing the Atlantic on the Vernon S. Hood steamship, detail the Modulor's refinement by illustrating the progressive design process.[77] These sketches pre-date the Modulor's public presentation in 1947, Le Corbusier's defence of it in 1948 and the first published articles about the Modulor, which appeared in 1950. Le Corbusier's Cap Martin sketches between 1951 and 1952 also reference the Modulor and the upraised Modulor arm appears in a pencil crayon sketch of his 1951 sculpture, L'Enfant est là.[78] A series of drawings stimulated by a visit to his cabinet-maker at Ajaccio in 1952 further reference the Modulor, as do a series of 1953 human bestiary sketches.[79]

What is important about these sketches, and the many other calculations that appear throughout his sketchbooks, is that they represent the development of the Modulor as a poetic device that enabled Le Corbusier to recombine the organic with the mechanical by translating natural proportions into a mathematical formula for use in his art and architecture. They are significant to Ronchamp as its design is predicated on the mathematical proportions of the Modular, imbuing the concept of symbosis with mathematical rigor.

3.2.4 Folkloric Influences

A third influence in Le Corbusier's sketchbooks is his concern for folkloric traditions. Through folklore, Le Corbusier was able to blend the premise of modern architecture with his interest in natural, organic forms and his own ideas about the spiritual. Le Corbusier argued that folklore was essential to reconciling the modern condition with the material and spiritual.[80] Le Corbusier juxtaposed modern skyscrapers with native, child-bearing women, indolent musicians, solitary adventurers on donkey back, and peasant women bearing their wares across a forbidding desert or posed against the land and sea.[81] By contrasting his intrigue with folkloric design with the streamlined aesthetic of the jazz age – aircraft and steamships, the "magnificent moving structures of the modern era" – Le Corbusier was able to introduce the primitive hut into the modernist idiom.[82] This technique revealed his concern

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[76] Sketch 25, sketchbook D14.
[77] Sketch 802-4, notebook D13.
[78] Sketches 584 to 587, 590 to 595 and 598 to 600, sketchbook E22, 1951, as well as sketch 836 in sketchbook F26. The pencil crayon is sketch 1015, sketchbook H30.
[79] Sketches 802 and 806 to 807, sketchbook F25, and sketches 1016 to 1020, sketchbook H30. .
[80] Le Corbusier, Le Corbusier Talks with Students (New York: Princeton Architectural Press, 1999) 61.
[81] Sketch 263, sketchbook B4; sketches 267, 269, 273, 274, 276, 275 and 282, sketchbook B4; and sketches 433, 435 and 439, sketchbook B7, and sketch 698, sketchbook C11, as well as sketch 585, sketchbook B9.
[82] Sketches 692 and 710, sketchbook C11, 1936. As cited in Fondation Le Corbusier, Sketchbooks, Vol. 1, 31.

about the shallowness – "the emptiness, uneasiness, indifference" and flirtation – of the pre-war period, compared to the simple whitewashed, hand-hewn vernacular architecture he witnessed during his travels through the Balkans and Africa and which re-emerged in the undulating *béton brut* surfaces of his 1950s architecture.[83]

Gardiner remarks on this interest in the folkloric when he compares the "accidental casualness" of Ronchamp to the folk architecture of Greek island villages.[84] Although Frampton argued that modern culture was fatal to the "authenticity" of vernacular cultures, projects like Ronchamp embody a primitivism, in both their form and "decoration" that bridges the vernacular and modernism.[85] While the technique of *béton brut* was not endemic to the region nor was its vernacular nature sympathetic to the aims of innovation – causing Le Corbusier to suggest the use of Paris-trained technicians for its application – Ronchamp was fashioned by individual craftsman using available technology and materials indigenous to the site. Its whitewashed form acts as an "X-ray" upon its surroundings, consistent with its function as a pilgrimage chapel, much as the whitewashed peasant's hut would have dominated the rural landscape amid the verdant imagery of the Greek village. Thus, by referencing folkloric tradition, Le Corbusier was able to advance his architecture from Modernist form to a style that was sympathetic to the rural, isolated landscape and the humble (grotto-like) sanctity of a place of meditation.

3.2.5 The Symbology of the Hand

The concept of the open hand was a continuous motif in Le Corbusier's art and architecture and is, in itself, an integrative element in this discourse. The motif first appears in Le Corbusier's paintings as a disjunctive element, as in Les Lignes de la main (1930).[86] Le Corbusier's sketches of 1932-33 frequently exhibit disproportionately oversized hands, as in Femme couchée, cordage et bateau a la porte ouverte (1933). Sekler traces the familiar motif from Chandigarh to 1945, while Le Corbusier references it in his 1948 publication, Modulor 2, and incorporates the imagery into a 1950 sketch of a medal bearing his image and sketches from 1952.[87] The Open Hand sculpture, as it

[83] Fondation Le Corbusier, Sketchbooks, Vol. 1, 28.
[84] Gardiner 38.
[85] Frampton 111.
[86] Also see sketch 513, sketchbook B8, from 1932.
[87] Sekler as cited in Sunand Prasad, "Le Corbusier in India," in Architect of the Century, eds. Michael Raeburn and Victoria Wilson, exhibition catalogue (London: Arts Council of Great Britain and authors, 1987) 297. Also, sketches 34 and 36 to 38, sketchbook D14. Fondation Le Corbusier, Sketchbooks, Vol. 2, 5.

appears at Chandigarh, is evident in his sketchbooks of November 1952. While various interpretations of the sculpture have been proferred (Franclieu, Prasad), Le Corbusier's notes indicate it was meant to represent peace and reconciliation: "At the moment when the modern world gushes forward in unlimited intellectual and material riches, one has to open the hand to receive and to give."[88] The rotation of the Chandigarh sculpture in the wind "indicated symbologically the direction of the wind (the contingent state)." [89] The symbol appears again in loose association with Le Corbusier's Modulor calculations, as it does in the architect's 1953 sketches for a pivoting sculpture to be executed by Savina and a series of charcoals of claw-like hands, dating to the same period, seemingly inspired by the Modular.[90]

What can be suggested by the repetitiveness of the open hand motif is a concern with the hand as a symbol for communication, as is his corresponding use of the ear as imagery for listening.[91] Thus, we see Le Corbusier's intuitive appreciation of art as a means of interpreting the symbolism of the architecture, as well as of the sculptural element as an architectural tangible. By incorporating the open hand motif into his artwork for Ronchamp, Le Corbusier alluded to the context of the architecture as a means of communication between the worshipper and the divine.

While these interests – forms from nature, the appearance of the open hand motif and the Modular and the influence of the folkloric – may seem disparate, they singly and severally contribute to the symbiotic discourse between art and architecture, as evidenced at Ronchamp.

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[88] Franclieu suggests the Open Hand "was born spontaneously in Paris as the expression of the return to harmony among men...." Fondation Le Corbusier, Sketchbooks, Vol. 1, 56-7. Prasad notes Le Corbusier uses hand imagery in his 1930 painting "Hand and Flint," Ferme Radieuse (1933) and a memorial to Valliant-Couturier (1938). Prasad 297. Le Corbusier as cited in Prasad 297.

[89] Le Corbusier as cited in Prasad 297.

[90] Sketches 863, sketchbook F26 (1952), and 894, sketchbook F27 (1952), respectively. Sketches 1000 to 1002, sketchbook G29; and sketches 1016 to 1020, sketchbook H30. Franclieu refers to these latter sketches as studies on the bull theme, for a "human bestiary." Fondation Le Corbusier, Sketchbooks, Vol. 2, 77. Sketches 724 to 726, 728, 732 to 733 and 735 to 736, sketchbook F24.

[91] Sketch 245, sketchbook D16", 1950.

3.3 Purism

3.3.1 History/Inception of Purism

Besides his personal sketchbooks, Le Corbusier advanced his interest in art making while articulating many of his beliefs about architecture through his involvement in the post-Cubist art movement, Purism. Purism refers to the artwork produced by Le Corbusier and his associate, French artist Amédée Ozenfant, between 1918 and 1925, along with the work of their colleague, artist Fernand Léger, between 1920 and 1925. The movement was influenced by the Analytic Cubism of Georges Braques and Pablo Picasso, and the geometricism of De Stijl, as well as characterized by elements of French Classicism, and defined by the industrial wares of the machine aesthetic. Purism stimulated the development of an international style of architecture, which emerged in Europe between 1910 and 1920 and that valued functionalism and the fourth dimension (movement) as its precepts. Susan Ball comments that Piet Mondrian, Theo Van Doesburg, Ozenfant and Le Corbusier shared a desire to "uncover the changing laws governing nature and reveal this order by means of a universal plastic language."[92] For Le Corbusier, this new language was Purism and it refined his concepts about the relationship of art to architecture.

Le Corbusier articulated the principles of Purism, which he came to as a result of his association with Ozenfant, whom he met in Paris at the age of 30, in two pivotal documents – the December 1916 article, "Notes on Cubism," in L'Elan, and the 1918 manifesto, Après le cubisme. Ozenfant and Le Corbusier represented themselves as Cubism's heirs and Purism as an alternative to non-objectivity, Dada, and Surrealism, intended to extract a contemporary style appropriate to the modern period via mechanical selection.[93] In Purism, Le Corbusier found expression for his belief that mechanical production and the "aesthetic criteria of modern design" were inextricably linked. The architect was able to abandon the decorative tradition of French architecture and to define concepts that would become central to his architecture: standardization, the object-type and Classicism reduced to its geometric elements. The transition from the handcrafted style of his Swiss villas to the streamlined Pavillon de L'Esprit Nouveau (1925) demarcated Le Corbusier's mid-career aesthetic – the rejection of the pre-First World War irrational, intuitive, self-indulgent abandonment of Cubism in place of an art and architecture that emphasized logic, order and discipline.

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[92] Susan L. Ball, Ozenfant and Purism: The Evolution of the Style 1915-1930, 2nd ed. (Ann Arbor: UMI Research Press, 1981) 21.

3.3.2 Explanation of Concepts Behind Purism

Like Analytic Cubism, Purism combined fragmented objects within an unconventional, ambiguous perspective. However, whereas Analytic Cubism was characterized by a multi-faceted, fragmented perspective, Purism was based on the placement of standardized objects in an orderly and precise manner on a regulating line. This approach enabled three-dimensional objects to be portrayed in a flattened, two-dimensional perspective consistent with Purist principles of standardization, mechanical selection and the constancy of the modern and the eternal. Dunnett comments that Le Corbusier was instrumental in advancing an artistic language, inspired by Cubism, of "pure plane, volume, and space," particular to the Machine Age.[94] Fry suggests that Purism attempted to retain the structural aspects of Cubism, while advancing or exploiting the medium's potentially rigorous structuralism. The result was a Cubism stripped of its essential "spatial and formal tension, wit, and ambiguity: (making Purism) a sort of heretical, Calvinist cubism."[95]

In considering Purism as a vehicle for Le Corbusier's ideas about art and architecture, it is necessary to appreciate that Le Corbusier considered industry, rather than the individual artist, to be the stylist of the modern era and Purism to be the reforming influence that would admit architecture to this modernity. By discarding the decorative, picturesque features of Cubism that, while consistent with a restless, pre-war society, were extraneous to the post-war period, Le Corbusier was able to establish a relationship between art, industrial objects, and "modern thinking."[96] Recombining the universal or standardized geometric forms of industrial wares, which the Purists referred to as "object-types," enabled Le Corbusier and Ozenfant to portray the beauty and anonymity of the machine aesthetic. By imbuing object-types with human qualities, as an extension of the human limb, the Purists infused them with an immediacy consistent with their functional nature. Further, since Ozenfant and Le Corbusier considered the Classical French tradition, characterized by order, economy, clarity of conception and language, to have been interrupted by Synthetic Cubism, Purism also provided the vehicle to re-introduce Classicism into painting and architecture.[97] The objects Ozenfant and Le Corbusier chose for their subject matter were typically French and classically detailed, enabling Purist paintings to mimic both the "classical overtones" and "contemporary associations" of Cubist paintings. In this way, Purist design could be anonymous and its use of standard types –

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[93] Mechanical selection is defined as "an impersonal cultural parallel to Darwin's theory of natural selection." Mark Antliff and Patricia Leighten, Cubism and Culture (London: Thames and Hudson, 2001) 214.
[94] Le Corbusier, The Decorative Art of Today, trans. James I. Dunnett (London: The Architectural Press, 1987) ix.
[95] Edward F. Fry, Cubism (London: Thames and Hudson, 1966) 171.
[96] Christopher Green, Art in France: 1900-1940 (New Haven: Yale University Press, 2000) 143.

abstraction, forms, systems, classicism and proportion – could align modernist architecture with a "machine-age classicism."[98]

To understand this concept of Classicism applied to industry, one must acknowledge the neo-Platonic allusions in Le Corbusier's Purist designs; although Le Corbusier was familiar with Plato only through the teachings and writings of others, Purism associated itself with an ideal of pure geometric primary forms "perfected, or purified, over time by the process of mechanical selection."[99] Ozenfant and Le Corbusier believed primary elements – the cube, sphere, cylinder, cone, pyramid, triangle, square, circle and straight and curved lines – were the keys to a composition, since they carried within them the "geometrical constants" that underlay the natural order.[100] The emphasis on geometrical forms is explained in Après le cubisme: as nature translated into "pure plastic equivalents."[101] In order for this geometric vocabulary to have "contemporary relevance," it was necessary for the Purists, and other avant-garde groups, to locate it within the "perfection, order, harmony, and collectivity" of the machine idiom.[102]

Le Corbusier and Ozenfant distinguished between mechanical selection – man-made objects, identified by the laws of selection as being economical in style, functional in application and orderly in execution, like the machine – and mechanical production – the mass production of industrial wares made possible by the machine.[103] The object-type was the product of mechanical selection: those objects necessary for the completion of the individual, defined by industrial design wares like bottles, jugs and vases that functioned as an extension of the hand, and that were identifiable by their invariable and stable form. Thus, Purism's vocabulary consisted of "banal and familiar objects" that were typically standardized, utilitarian and factory made, while other, plastic elements were subordinated to

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[97] What Ball refers to as "the epitome of the universal transmutable language of Purism." Ball 94.
[98] As evidenced by his comment on the programme for the Pavillon de l'Esprit Nouveau: "...to illustrate how, by virtue of the selective principle...industry creates pure forms; and to stress the intrinsic value of this pure form of art...." Nancy J. Troy, Modernism and The Decorative Arts in France: Art Nouveau to Le Corbusier (New Haven: Yale University Press, 1991) 193.
[99] Ball 93.
[100] Ball 80.
[101] Ball 44. Ozenfant and Le Corbusier elaborated on non-mimesis thusly: "Nature, when she is beautiful, is beautiful only in proportion to art; beautiful nature is only beautiful insofar as she touches the geometric animal in us." As cited in Ball 50.
[102] L'Esprit Nouveau establishes the aesthetic doctrine of industrialization as "...efficiency in everything – and no efficiency without purity of idea and of technique." Ball 167.
[103] Ball 92.

form.[104] Le Corbusier and Ozenfant believed Purism's task was to "perceive, retain and express the invariant" of its object-type.[105] In this manner, then, the order and functionalism of the object's structure – qualities related to efficiency such as proportional harmony – were established as the "locus of its quality," whereas the decorative or remarkable elements were disregarded.[106] Purist elements in painting were to be an "equivalent" of the object – Euclidean geometric solids ordered along a series of regulating lines to create harmony and constancy.[107] In a similar manner, Purist architecture was analogous with the object-type – manufactured objects because they were devised to respond to constancy needs (what Green refers to as "the constant human need for order"), and architecture because it was created to respond to human needs.[108]

Thus, for Le Corbusier and Ozenfant, the relationship of the machine to man was one of mutualism: machines made possible the perfection of the modern factory, just as its products were the offspring of the machine. The machine was, thus, a creator of modern life. Similarly, the proportions of nature were a generator of classical geometry, since it comprised geometry's necessary constituents, such as the sphere, cube, prism and cone. Thus, the Purists' juxtapositioning of modern objects within the classical context of Greek architecture and the decorative arts allowed them to claim an historical association with universal and constant laws, while assuming an evolutionary, modernist stance.[109]

3.3.3 How Concepts of Purism are Manifested in Le Corbusier's Paintings and Architecture

Within their spatially constrained, yet evocative, reference point, Purist paintings had a "calm exactitude." Purist art was to be a medium for contemplation that, as is evident in Le Corbusier's *Nature morte á la pile d'assiettes* (1920),

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[104] The viewer and artist were to discern the object-type's "permanent, underlying structure...rather than its ephemeral, outward form." Troy 200. The flattened planes of Purism and "perspectival distortion" are acceptable in the effort to represent a 3-D object in a 2-D plane. Ball 40.
[105] Troy, Decorative 201.
[106] Troy, Decorative 201.
[107] "Les Traces Régulateurs" describes regulating lines as a geometric device used to correct proportional relationships in Purist art and architecture. Christopher Green, "Purist painting: principles and processes," in Le Corbusier: Architect of the Century (London: Arts Council of Great Britain, 1987) 120.
[108] The machine aesthetic was a response to constancy needs, according to Green. Christopher Green, "Purism," Concepts of Modern Art: From Fauvism to Post-modernism, 3rd ed., ed. Nikos Stangos (London: Thames and Hudson, 1994) 82.
[109] The French predilection for geometry contributed to efforts to impose "the rigor of a Classical ordering system" on Cubism: "By the end of 1916 we see in Paris a literary and artistic style marked by both Cubism and Futurism which was rapidly moving towards a Neo-Platonically motivated classicism, a classical revival." Ball 22.

emphasized: "...the importance of intellect, the unimportance of individuals, the value of precision."[110] Although their subject matter was reminiscent of a Cubist still life, Purist paintings were set apart by "the clarity of their arrangement, the sobriety of their treatment, the manner in which each object is presented not as an individual item of great complexity but as an example of a class of simple and identical things."[111] In this manner, Purist paintings were like object-types; since their constrained vocabulary depended upon the depiction of "equivalents" – as opposed to the Cubist emphasis on deformation, Purist paintings consisted of spatially-flattened compositions of recognizable, machine-produced wares alluded to through interlocking contours, the repetition and predictability of which emulated machine production. The fixed and constant response to the Purist painting recognized a universal timelessness, made possible by the incorporation of primary forms that satisfied the human need for order, as apparent in the plastic form of paintings such as La Bouteille de vin orange (1922) and Nature more pâle à la lanterne (1922).

The Purists' emphasis on mass production was revolutionary for Le Corbusier's architecture, as evident in such projects as the Ozenfant studio and house (1922); Pavillon de l'Esprit Nouveau, designed for the International Exposition of Decorative and Industrial Arts (1925); and Villa Savoye (1929-31). Purism distanced the architect from the influence of Schuré, who assumed a worldview that considered the true aim of art to be "the expression...of spiritual forms," and Provensal, who considered the role of the artist to be to discover and reveal spiritual truths.[112] Rather, Le Corbusier's Purist architecture was influenced by the opposition between "the disciplined or free manipulation of form and the rational analysis of function and structure."[113] Purist principles of standardization and universality were expressed in his architecture as an "ordered arrangement, noble prisms, seen in light" and illuminated by measure or scale.[114] His Purist paintings allowed Le Corbusier to articulate the significance of such concepts as the use of regulating lines and classical geometry in his architecture, consistent with prevailing French concerns about social order in what Troy suggests was a fashionable response to pre-war attitudes about the

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[110] Green, "Purism," 80.
[111] Troy, Decorative 199.
[112] Turner 29, 15.
[113] "...behind the resolution of these oppositions in built form lay, as Le Corbusier saw it, the testing-ground of art and ultimately of drawing, the private area in which he could work through his relationship with nature with unrivaled immediacy." Christopher Green, "Purist painting: principles and processes," Le Corbusier: Architect of the Century, eds. Michael Raeburn and Victoria Wilson, exhibition catalogue (London: Arts Council of Great Britain, 1987) 120.
[114] Le Corbusier, Towards 162-3.

decorative arts.[115] Indeed, Green suggests the core of Purism was the alliance between painting and architecture, as apparent in one of Le Corbusier's first Purist buildings, the Ozenfant studio.[116] Ball comments that the Purist painting provided Le Corbusier "with a visual language of precise geometric forms which were both timelessly universal and temporally pertinent to the machine age," as apparent in comparisons of Le Corbusier's schematic drawings and elevations of the Villa Stein and the Villa Savoye with his and Ozenfant's Purist paintings.[117] His research into standards and types culminated in a vocabulary of object-types – she cites the pilotis, roof garden, free plan, free facade, ribbon window, ramp or bridge, double-height space, scissor and spiral staircase – for his architecture that were consistent with the concept of the use of standardized elements for his Purist paintings. Le Corbusier published this manifesto, on the five points of architecture, in 1926. Le Corbusier's pursuit of an archetypal form of architecture based on innovations such as the *plan libre*, as characterized by projects such as the Maison Cook (1926) that "attempted to synthesize the cultural range of the Purist sensibility," coincided with his disaffection with Ozenfant around 1925.[118] Thus, Le Corbusier evolved the theoretical typologies of Purism, devised in collaboration with Ozenfant through the medium of painting, into an international style of architecture that established him at the forefront of the Modern movement, along with more prominent architects such as Walter Gropius and Frank Lloyd Wright, during a period of personal introspection and renewal. His consequent expressive/organic forms, achieved through the introduction of the concept of *objets `a réaction poétique,* were representative of the stylistic change culminating from the abandonment of his partnership with Ozenfant.

Le Corbusier's way of thinking about architecture, society and the world was structured around the way he understood the relationship between himself and nature. Green refers to Le Corbusier's "willingness to exploit the coming together of the geometric and the natural confrontationally," in recognition that the mechanical and natural (primitive) were singular elements and that, by coupling humans with nature rather than setting them against it, the manufactured and natural could assume equal dominance without either being compromised.[119] By incorporating nature, in its primal state, into the architecture, nature was able to respond to the design, acting upon and with it. This dual interest in the natural and the manufactured was found outside aesthetic avant-garde theory; Swiss artist Eugene Grasset (1845-1917), whom Le Corbusier admired, encouraged architects and decorators to study geometric

[115] Troy, Decorative 202.
[116] Green, "The architect" 119.
[117] Ball 163-4.
[118] Frampton 75.
[119] Green, "The architect" 116.

figures to determine the principles of harmony central to nature as co-existent with those principles indigent to ornament.[120] For Le Corbusier, the occupation of space by art, architecture and nature were analogous and essential to the expression of aesthetic emotion: "The flower, the plant, the tree, the mountain, all these are upright, living in an environment...we look, moved by so much unity commanding so much space; and then we measure what we see."[121] Like nature, Le Corbusier considered the process of creating a painting, sculpture or architecture to be transformative; "(Le Corbusier considered)...the surroundings, both immediate and more distant...(to be) stirred and shaken, dominated or caressed by it (nature)," just as he acknowledged the imprint of the environment on art.[122] Thus, by 1920, Le Corbusier apparently saw himself as "a geometrician acting on nature," his Purist architecture a series of object-types conceived through the devices of geometry and regulating lines, in harmony with the order of nature – what Green refers to as the device of modeling the "sculptural interior" through the admission of light through "geometric, prismatic volumes."[123]

3.3.4 Significance of Purism to the Symbiosis of Art and Architecture

If we consider, then, the importance of Purism to Le Corbusier's aesthetic, it is that he was able to establish guiding principles that enabled him to rationalize the basis for his painting and architecture. His interest in classical Greek art and architecture allowed for their incorporation into his Purist architecture. His pursuit of standardization and regulating lines enabled him to abandon the excesses of the decorative tradition in order to define a presumed universal style of architecture that valued the play of light and space within an economical mass made possible by new technologies. By placing both his painting and his architecture on a series of regulating lines, Le Corbusier was able to refine ideas about proportion, rhythm and harmony, consistent with classical geometry. He was also able to advance his beliefs about constancy and order, as they applied to the relationship between the man-made and natural. In this manner, Le Corbusier was able to apprehend the mutualism inherent to the mechanical and nature, as well as to art and architecture.[124] Through the integration of the natural with the man-made, Le Corbusier achieved a concordance between his art and architecture: the distinctions between nature as a design form and architecture were reduced by the device of bringing the exterior into the interior through such elements as ribbon windows and roof

[120] Grasset as cited in Green, "The architect" 112.
[121] Le Corbusier, The Modulor 1 and 2 31.
[122] Le Corbusier, The Modulor 1 and 2 31.
[123] Green, "The architect" 114.
[124] Peter Blake, The Master Builders: Le Corbusier, Mies van der Rohe, Frank Lloyd Wright, 2nd ed. (Toronto:

terraces. Similarly, the use of shared devices such as flattened perspective, frontality and containment blurred distinctions between Le Corbusier's painting and architecture.[125] Thus, concepts Le Corbusier held about painting came also to dominate his architecture, enabling the coincidence of these media in projects such as Ronchamp.

3.4 Writings and Other Works

3.4.1 Writings by Le Corbusier

Besides Le Corbusier's engagement with art movements such as Purism, in order to gain an understanding of the concept of symbiosis as it relates to his work, it is useful to consider the theories and ideas Le Corbusier articulated in his writings. Some of Le Corbusier's earliest philosophies about art and architecture are delineated in his diary, A Journey to the East, which chronicles his travels through the Balkans, Turkey, Greece and Italy between 1907 and 1911 (Le Corbusier also visited Vienna, Paris and Germany during this period). Le Corbusier collaborated with Ozenfant between 1920 and 1925 on the writing of L'esprit nouveau, a periodical that illuminated their ideas about Purism, and Après le cubisme, the manifesto of the Purist movement. He produced four books of his own during this period that consisted of extracted and recombined excerpts on his ideas about art and architecture taken from L'esprit nouveau: L'art decoratif d'Aujourdi (1925), Vers une architecture (1927), Urbanisme (1924) and La peinture moderne (1927). He expounded his theories about measurement in The Modulor I and II (1950-55). Le Corbusier also provided retrospectives of his work in various publications, such as My Work (1960), Corbusier (1951), Le Corbusier: Early Works (1938) and Complete Architectural Works (1943-65). Aside from these texts, he authored a number of books on city planning, which are not germane to this discussion.

Of immediate concern in his writings, as previously referenced in the discourse on his sketchbooks and as apparent in The Journey to the East, is Le Corbusier's fascination with the instinctual, yet abstract aspects of the "naïve" folk art of Hungarian and Serbian peasants.[126] Le Corbusier considered peasants – "these men who do not reason" – to

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George J. McLeod Limited, 1976) 25.

[125] Green, "The architect" 114.

[126] "First and foremost among these men who do not reason is the instinctive appreciation for the *organic line*, born from the correlation between the most utilitarian line and that which encloses the most expansive volume – thus the most beautiful." Le Corbusier, Journey to the East, ed. and trans. Ivan Zaknic (Cambridge: MIT Press, 1987) 16.

have an instinctual understanding of the beauty of the organic line and contrasted the "simple-minded' potter, "whose fingers unconsciously obey the rules of an age-old tradition," with the jaded draftsman of the modern factory, whose disturbingly fantastic forms are but "foolish whines."[127] In "aesthetic sensuality," vital geometric forms and evocative color of the peasant art – which he considered to rival the work of Van Gogh and Cezanne – Le Corbusier found support for his ideas about a universal system of dimensioning that would enable him to achieve the ideal proportion.[128] When Le Corbusier commented on the Beaux-Art influence of Bucharest architecture, the "decorative power" of the whitewashed, peasant rooms of Turnovo, or his quest to replicate the proportions, unity and clarity of "a little country cottage," he was arguing for a minimalist (architectural) language that would enable architects to expose their public to the poetic context of architecture.[129]

A further design source for Le Corbusier lie in the decorative aspect that people and objects recalled for him when silhouetted against the virgin forms of the simple, whitewashed forms of folkloric architecture. Journey to the East references the whitewashed walls of monasteries and hotels, the whitewashed earth, even the white sun or the interplay of light and color between sky and building – symbols that reappear throughout his architecture. As an illustration, his diaries reveal his dismay at the comparably feeble efforts of modern architecture when compared to the precision of the "silent sanctuaries" of the whitewashed Turkish mosques.[130] Concomittantly, Le Corbusier praised the incalculability of the geometry, materials and color of Mount Athos in achieving the expression of the absolutes of nature.[131] Le Corbusier elaborated on this concern about the integrity of the pure surface in his commentary on his travels to the Orient, wherein he described the whitewashed houses as an "X-ray of beauty...an assize court sitting in permanent judgment. Imperfections and visual deceits were quickly exposed by the whitewash."[132] Le Corbusier's 1935 text When the Cathedrals Were White continued this theme: " ...'the house of the people', where they discussed mysteries, morality, religious, civil affairs or intrigue was entirely white...we must get that image into our hearts."[133] Clearly, these forms established an aesthetic that is apparent in both Le Corbusier's late Purist works and in his New Brutalism experiments. By establishing the primacy of proportion and rhythm in folkloric tradition, Le Corbusier was able to use the perceptual insights he gained from his travels to affect

[127] Le Corbusier, Journey 16.
[128] Le Corbusier, Journey 15-6.
[129] Le Corbusier, Journey 177.
[130] Le Corbusier, Journey 193.
[131] Le Corbusier, Journey 177, 217, 238.
[132] Jencks, Tragic 32.
[133] Le Corbusier as cited in Jencks, Tragic 121.

the course of his architecture, as we see in this comment: "Wouldn't it take me a lifetime of labor to harness these simple and eternal forces, fraught with the uncertainty of ever attaining the proportions, unity, and clarity worthy of even a little country cottage built in accordance with the invaluable laws of age-old tradition?"[134]

Exclusive of this passion for folkloric traditions, many of Le Corbusier's later writings from the Purist period, prior to his 1925 debut at the Exposition des Arts Decoratifs, also speak to the rejection of decorative arts in favor of the machine aesthetic. This is significant to an understanding of the symbiosis of art and architecture because Purist painting, doctrine, and practice, as we have seen in this thesis, forced Le Corbusier to rethink his earlier endeavors as a decorator and to find a new vocabulary to express his idea that architecture, like art, was a question of emotive form organized according to constants. The contradiction between Le Corbusier's early enthusiasm for the decorative arts and the lessons of Paris and Germany was patent in the contrast between the architect's attitude towards art as a decorative element in his interior design work at La Chaux-de-Fonds (1912-17), in which he responded to the demands of his clientele by emulating early Restoration, Empire, Louis XVI and Directoire styles, and his Purist period. Two key texts trace this change of posture.

In L'art decoratif d'aujourd'hui (1925), Le Corbusier concluded that "the naked man" had no need for trinkets, fetishes or collectibles, but, rather, was seized with an intellectual curiosity that caused him to question history. He argued that the availability of new means of production would stimulate new needs, with universal solutions, while the subsequent collapse of the "hierarchical" decorative tradition would usher in an era of egalitarianism in design. In confronting the paradox of making decorative art of simple tools that were the byproduct of good taste characterized by choice, suitability, proportion, and harmony, Le Corbusier posited that the geometry of the piece was the essence of its design and that the realization of concepts such as harmony and proportion imbued a painting or a work of architecture with its spirit.[135] Thus, the utility of rational perfection and precise formulation, as he termed it, represented the realization of the modern spirit in painting and architecture – everyday, utilitarian works of perfection and lasting value that were the outcome of the vigorous pursuit of innovation, or what Le Corbusier described as "clean, concise, brief, economical, intense, essential" design.[136] Le Corbusier's intense dislike of the decorative arts after 1920 included a critical appraisal of anything that was un-modern. This criticism extended to

[134] Le Corbusier, Journey 177.
[135] Le Corbusier, Decorative 79, 23.
[136] Le Corbusier, Decorative 32.

denouncing the practice of decorating objects in order to disguise poor quality and manufacturing faults, which he considered to be an example of the perversion of decoration, contrasted with the harmony of convenience and utility.

In L'art decoratif d'aujourd'hui it is apparent that Le Corbusier found refuge in the precision and constancy of machine art, likening it to the decisive moment that inspired such works as the Parthenon.[137] In his mind, beauty was to be achieved by the attainment of order and unity – through the organization of "all those things which excite and satisfy our visual senses to the fullest degree" – while the act of creation was lauded as the source of spiritual attainment.[138] Measure or scale was considered to be the foundation of the poetic moment in architecture. Since the advent of the machine order created an imbalance in society between the contemporary and the ancient, progressive painting and architecture, by virtue of being true to their age, appreciated the urgency of the need to respond.[139] Thus, just as Le Corbusier's architecture during the 1920s and 1930s was the product of principles and laws defined by Purist painting. That being so, the abandonment of the decorative arts was necessary to enable the advent of a modern architecture: " The hour of architecture sounds, now that art awaits the spiritual expression of our age in material form, now that decorative art can no longer be considered acceptable within the framework of contemporary aspiration."[140] These ideas engendered the transformation in Le Corbusier's painting and architecture made possible by Purism, as can be seen in his comments of 1925 about the death of the French decorative tradition: "Glitter is going under. The hour of proportion has arrived.... Decoration is dead and the spirit of architecture is asserting itself."[141]

L'art decoratif d'adjourd'hui and subsequent writings articulate Le Corbusier's belief that architecture was a mindful construct "which gives material form to the sum consciousness of its age."[142] His association with Ozenfant and Purism acted as a clarifying moment in his architecture, enabling him to position architectural sensation as the outcome of human reaction to geometric form. By also clarifying his reaction to decorative arts, Le Corbusier was able to adopt a unique, modern linguistic idiom in both his painting and architecture. As Green argues, Le

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[137] Le Corbusier, Decorative xxiv.
[138] Le Corbusier, Towards 143.
[139] Le Corbusier was intolerant of the "dead spirit" of decorative arts that threatened to hinder the progress of modernist architecture: "These sanctuaries stifling with elegancies, or on the other hand with the follies of "Peasant Art," are an offence. We have acquired a taste for fresh air and clear daylight." Le Corbusier, Towards 91.
[140] Le Corbusier, Decorative xxv.
[141] Le Corbusier, Decorative 135. His derision is evident: "What a hodgepodge of antiquated ideas occupies most of our intellectual pursuits. Our practical and effective actions are weak and uncertain because we have petrified, like Lot's wife, for having looked too long behind us." Le Corbusier, Journey 173.

Corbusier's subsequent paintings of the late 1920s expressed a more "homogeneous view" of man and nature, utilizing the abstracted collages of constructivism, coupled with Purist geometry and object-types, to address the harmony between the man-made and natural forms. This shift is also evident in his architecture: Green points out that Le Corbusier achieved a symbiosis between natural and synthetic materials, combining the use of natural elements such as rough stone with manufactured elements such as reinforced concrete. This, again, supports Green's hypothesis about a transition in Le Corbusier's painting and architecture, through his Purist period, from man-made objects (representative of man) confronting nature to their unification: nature as a device that acts "both with and against architecture."[143]

The other text of note is Towards a New Architecture, in which Le Corbusier remarks that decoration is the "essential overplus" of the simple peasant, while proportion is the equivalent for the cultivated man, who is excited by the relationships created by the satisfaction of the mind through the achievement of unity and economy and of the senses through the employment of geometric volumes, such as the cube and sphere.[144] In this context, in which architecture is governed by standards, art (painting, literature, music), in comparison, is freed from utilitarian motives. A work of art has a "unity of aim," established by a clearly-defined statement that is without ambiguity, so that the harmony of the work is immediately apparent and moves the viewer, just as a work of nature might. Le Corbusier considered this clear statement that accepted the work of art or nature as a unique character to be a "pure creation of the mind." This concept, while evident in painting and music, was absent from modern architecture, which he considered to be mere construction, as opposed to the achievement of poetic emotion, which he believed to be architecture's true aim.[145] Thus, works of decorative art should be beautiful tools created by industry and defined by choice, suitability, harmony and proportion, as distinguished from art (painting, sculpture, architecture), which encompassed the realms of emotion and passion.[146] In this manner, he rejected art as a decorative application to architecture, as in the Beaux-Art tradition, while admitting the pure forms of the modernist painter or sculptor to the architectural ensemble, such as in Léger's "murals" for the Pavillion de l'Esprit Nouveau (1925): "The hour of

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[142] Le Corbusier, Decorative 118.
[143] Green, "The architect" 116.
[144] Le Corbusier, Towards 143.
[145] Le Corbusier, Towards 214.
[146] Le Corbusier, Decorative, 79.

architecture sounds, now that art awaits from the spirit of our age its definition in material form, now that decorative art can no longer be considered compatible with the framework of contemporary thought."[147]

Besides his general concern with the role of art in architectural production, a consistent theme for Le Corbusier in Towards a New Architecture was innovation. Le Corbusier argued against the strict utilitarianism of architecture, advancing the notion that architecture was a harmonizing influence, "a pure creation of the spirit." As such, the arrangement of the forms relied on an "appreciable rhythm;" the "destruction of form" by the inclusion of the utility of doors and windows was to be alleviated by the use of the artist's devices to "accentuate" the form. As L'art decoratif d'aujourd'hui had done, Towards a New Architecture enabled Le Corbusier to articulate his belief that the new era, defined by Cubism and "later researches," represented the struggle to replace the follies of decoration, or its opposite, "Peasant Art," with "fresh air and clear daylight." Commenting on the belief that the machine age marked the birth of a new inventiveness that would stimulate a correspondingly new architecture, Towards a New Architecture declared that architecture was "a thing of art, a phenomenon of the emotions, lying outside questions of construction and beyond them;" it was up to the artist to "animate" functionality so that the forms and shapes provoked plastic emotion.[148] If architecture was to be provocative, then it must be sensory – the elements should be arrayed so as to excite and move the viewer. Conversely, beauty could be understood, Le Corbusier suggested, as the mating of geometry with creativity in the same way engineers "satisfied our eyes" with their geometry and mathematics. It follows that Le Corbusier considered the primary forms to be the most beautiful – "the very nature of the plastic arts" – while the complex geometry of Gothic architecture earned his disdain. Rather, the "geometrical solution" that Le Corbusier referred to might constitute itself in the rectangle, as it did at the Villa Savoye, or allow for the organic form of Ronchamp.

Le Corbusier considered architecture to consist of plastic forms that "work physiologically" to stimulate the senses and reveal the harmony between the physical and emotional realms – architecture as the plastic expression of the poetic moment.[149] Towards a New Architecture explained this concept of the resonance between art and architecture

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[147] Le Corbusier, Decorative 127.
[148] Le Corbusier, Towards 19.
[149] Le Corbusier postulated a possible definition of harmony as: "...a moment of congruence with the axis that lies within us and therefore with the laws governing the universe, a return to an underlying order. This could explain why the appearance of certain objects gives us a sense of satisfaction – a satisfaction experienced, time and again, by everyone." Le Corbusier, Towards, as cited in Jacques Guiton, ed., The ideas of Le Corbusier on architecture and modern planning, trans. by Margaret Guiton (New York: G. Braziller, 1981) 19.

as an emotive force as follows, exemplifying the poetic approach to architecture that distinguished Le Corbusier's design aesthetic: "One uses stone, wood, cement, and turns them into houses or palaces; that's construction. It calls for skill. But, suddenly, you touch my heart; you make me feel good. I am happy. I say: it's beautiful. This is architecture. It is art....You have not only adapted raw materials to the functional requirements of a project but also, *transcending* these requirements, have established relationships that stir my emotions. That is architecture."[150] Thus, Le Corbusier considered the architectural work to be effective only when it coincided with recognized, admired and accepted universal laws and when the elements were arranged in a manner that attained the most visual impact by acting on the senses. This vision is also apparent in his comparison of the relationship of the rhythm of graduated light to the grandiosity of emotion that the architecture evokes: "You are enthralled by a sensorial rhythm (light and volume) and by an able use of scale and measure, into a world of its own which tells you what it set out to tell you. What emotion, what faith!"[151]

Le Corbusier's language was expressive of the sense that his architecture was ordered by his art; in referring to architecture as "noble prisms, seen in light" or commenting that "architecture only exists when there is a poetic emotion," Le Corbusier set out his manifesto that architecture is the natural progression of the artistic process.[152] Le Corbusier alluded to this by suggesting that the architect is a purveyor of emotion, beauty and order. His interest in art and architecture as co-existent was symbolic of a shift from a socio-political view of architecture to one that was concerned with symbolism and aesthetics. As Le Corbusier became increasingly intrigued with the possibility of a synthesis of the arts in the mid-1940s, he advocated for collaboration between architects and the plastic arts. His comments in the 1946 edition of L'architecture d'aujourd'hui, concerning the 1950 Porte Maillot exhibition projects and the inclusion of this topic on the agendas of both the 1947 CIAM congress and the founding meeting of Group Espace, a Paris-based association of artists and architects, are evidence of his increasing interest in a synthesis of the arts or, in its more sophisticated iteration, symbiosis. This development is consistent with his 1945 treatise, "Ineffable Space," in which, tracing his remarks to avant-garde painting, Le Corbusier argued that architecture, sculpture and painting are dependent on space, which "releases" the aesthetic emotion.[153] The effect of a work of art on the environment is a "phenomenon of accordance" – thus, the victory of proportion (on the bones of the work, as well as the artist's intent) represented the achievement of the fourth dimension, the intuitive leap shaped by the artist's

[150] Le Corbusier, Towards as cited in Guiton, Ideas 17-18.
[151] Le Corbusier, Towards 183.
[152] Le Corbusier as cited in Ball 79..

collective wisdom.[154] Le Corbusier referred to this as the miracle of ineffable space, "the consummation of plastic emotion," and intimated that the time (he was writing in 1945) was right for a synthesis (which this thesis will argue approaches symbiosis in certain of his projects) of architecture, painting and sculpture after a decade of separation.[155] This devotion to "espace indicible" is considered to represent the transition from the mannered rationalism of Le Corbusier's early/mid career to the synthetic, plastic expressions of his late career, symbolized by Ronchamp, Unité d'Habitation (Marseilles) and Chandigarh.[156]

Le Corbusier also articulated key concepts about architecture as art in documents such as his 1946 article, "Ineffable Space," which initially appeared in L'architecture d'aujourd'hui and was republished in The Modulor (1950) and Modulor 2 (1955). These moments of clarity enabled Le Corbusier to reconcile the duality of the poetic, plastic moment with the rationalism of geometry. In "Ineffable Space," Le Corbusier suggested that art was the means for modern man to transgress the fourth dimension (movement) or what Joan Ockman refers to as "an all-encompassing release from real time and space."[157] As architecture, sculpture and painting are dependent on the space they occupy, they "act" on their surroundings, even as their environment "brings its weight to bear on the place where there is a work of art."[158] The "phenomenon of concordance" is the consequence of the achievement of proportion by a process of intuition on the part of the artist, architect or sculptor and of comprehension by the privileged few who appreciate its significance. This miracle of ineffable space was what Le Corbusier referred to as "the consummation of plastic emotion."[159] At the time he wrote "Ineffable Space," in the mid-1940s, Le Corbusier considered the fine arts to be progressing towards what he termed a synthesis, but what it seems apparent was actually a symbiosis in projects such as Ronchamp, made possible through a concordance of time and events. Having experienced a lifetime of involvement in architecture, painting and sculpture, Le Corbusier felt that this progression righted the "unfortunate disassociation" experienced within the fine arts for the better part of a century.

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[153] Le Corbusier, "Ineffable Space," Architecture Culture: 1943-1968: A Documentary Anthology, ed. John Ockman (New York: Rizzoli International Publications, 1993) 66.
[154] Le Corbusier commented in 1945 that the search for harmony opened his mind to the "fourth dimension," which he defined as the "moment of limitless escape evoked by an exceptionally just consonance of the plastic means employed," through the practice of architecture, sculpture and painting. Le Corbusier, "Ineffable Space" 66.
[155] Le Corbusier, "Ineffable Space" 66.
[156] Ockman refers to this as "the poetic transcendence of his late realizations."
Joan Ockman, ed., Architecture Culture: 1943-1968: A Documentary Anthology (New York: Rizzoli International Publications, 1993) 65.
[157] Le Corbusier, "Ineffable Space" 64.
[158] Le Corbusier, "Ineffable Space" 66.
[159] Le Corbusier, "Ineffable Space" 66.

The other aspect that must be considered in understanding Le Corbusier's aesthetic was his belief that architecture was equivalent to a living organism. He contrasted the development of a building to a bubble: "This bubble is perfect and harmonious if the breath has been evenly distributed and regulated from the inside."[160] The argument that "the exterior is the result of an interior" proceeded from Le Corbusier's insistence that, in order to be distinguishable from "mere construction," architecture must have an aim.[161] Green comments that Le Corbusier believed that how space was handled – including the space within the building and its response to the space of its setting – was the key to architecture as art.[162] Synthesis existed in the "forms" of art and architecture, while separateness prevailed in the practices of art and architectural design – art was "a 'free' process of exploration and invention."[163] This emphasis on the graphics of the painting or architectural design explains why many of Le Corbusier's paintings subjugate the subject to the design.[164]

Consistent with his belief that nature was the source of all design, Le Corbusier approached architecture from the perspective of the creator: "Everything in life is in essence biological. The biology of a plan or section is as necessary and obvious as that of a creation of nature. The introduction of the word "biology" illuminates all research in the fields of building. Living, working, cultivating body and mind, moving from place to place, are parallel processes to those of the blood, nervous and respiratory systems."[165] Le Corbusier's interest in the biological origin of nature predates Purism. However, because he appreciated the potential of everyday objects from nature and human biology as design elements, Le Corbusier placed emphasis on studying natural organisms as a source of architectural inspiration.[166] Drawing from nature represented not only a method of learning architecture, but of acquiring grace, flexibility, precision and serene perfection: "...I would like architects – not just students – to pick up a pencil and draw a plant, a leaf, the spirit of a tree, the harmony of a sea shell, formations of clouds, the complex

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[160] Le Corbusier, Towards 181.
[161] Le Corbusier, Towards 181, 195.
[162] Green, "The architect" 110.
[163] Green, "The architect" 111. As Le Corbusier commented: "But where does sculpture begin, where does painting commence, where does architecture start? (....) within the very body of the plastic event, everything forms a whole: sculpture, painting, architecture, volumes...and polychromy, in other words, materials, quantities, specific consistencies, assembled into relationships that arouse our emotions." As cited in Pauly, Le Corbusier 122.
[164] Jordan argues that Le Corbusier obscured his subject to give emphasis to the form and colour of his paintings, just as the Cubists did. "The real theme of the painting must always be a violent explosion of form and colour to which any literary image, any 'subject', must always be strictly subordinate." Robert Furneaux Jordan, Le Corbusier (London: J. M. Dent and Sons Ltd., 1972) 30.
[165] Le Corbusier, My Work 201.
[166] Letter from Le Corbusier to Mr. Martienssen in Johannesberg, dated 23 September 1936, as cited in Guiton, Ideas 83.

play of waves spreading out on a beach, so as to discover different expressions of an inner force."[167] This practice, he believed, would enable the architect to see beyond sensation and to be uplifted into a state of conscious delight and harmony with the universal laws that controlled people's actions, "in which we can use our full powers of recollection, reason, and creation."[168]

Further, as Le Corbusier articulated in Précisions sur un état présent de l'architecture et de l'urbanisme, he considered simplicity to be integral to art: "Great art – we must never tire of repeating this – is produced by simple means....Simplicity, which results from judgment and choices, is a sign of mastery. It gives, through a clearly perceptible play of forms, the means of expressing a state of mind, of revealing a spiritual system. It is like an *affirmation*, a path leading from confusion to clear geometric statements."[169] Similarly, *modénature* – the "interplay of light and shades" which sets the tone of the architectural piece – was also considered to be essential to the completed piece, since it required the architect to cast aside his (her) persona as engineer in favor of plastic artist or sculptor.[170] Le Corbusier considered the Parthenon to be the supreme example of *modénature*: "Here stands the purest testimony to the physiology of sensation and to the mathematical speculation that supports it; we are transported by its sensuality, ravished by its intelligence; we reach the axis of harmony."[171] As Towards a New Architecture substantiates, for Le Corbusier, the process of creating was an inner experience, while perception was sequential, a series of "visual events."[172]

If Le Corbusier's conclusion that simplicity is integral to art is correlated to his concern about the economical forms of folkloric traditions, it is apparent that the "aesthetic spirituality" of architecture apparent in Ronchamp is the product of the complex interplay of his theories about the primacy of geometry, the intransigent character of light and volume, the effect of architecture as an emotive force and the phenomenon of accordance that results from the interaction of art and architecture as generators of visual and emotional impact within the environment. Architecture is, thus, instinctual – the mastery of simple and eternal forces – as well as a function of the contemporary context;

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[167] L'Architecture d'audjourd'hui, numéro spécial, 1948, 53, as cited in Guiton, Ideas 83.
[168] Le Corbusier in Towards, as cited in Guiton, Ideas 18.
[169] Le Corbusier, Précisions sur un état présent de l'architecture et de l'urbanisme, as cited in Guiton, Ideas 33-4. He elaborates on simplicity: "Simplicity synthesizes. A ragged agglomeration of cubes is an accidental event, but a synthesis is an intellectual act." Le Corbusier, Précisions, as cited in Guiton, Ideas 35.
[170] "'Modénature' is the acid test of the architect; it leaves him no alternative: to be or not to be a plastic artist." Le Corbusier, Towards, as cited in Guiton, Ideas 42.
[171] Le Corbusier, Towards, as cited in Guiton, Ideas 43.
[172] Le Corbusier, Towards, as cited in Guiton, Ideas 43.

while Le Corbusier subjugated this concept during his Purist period, his subsequent pursuit of forms from nature support the suggestion that the essence of his work was innately intuitive, even as it responded to the conditions of the architectural environment.

3.4.2 Other Works by Le Corbusier

Besides his paintings and architecture, Le Corbusier also engaged in other aspects of art production, among them his sculptures, ceramics, tapestries and murals of post-WW II. In the context of modernism, the ambiguities of mural painting, from the three-dimensionality of the form to the challenges created by the expansiveness of the "canvas," lent the medium to the abstract form. With the acknowledgement that art was as important an architectural element as lighting or color, it was appropriate that Le Corbusier would attempt to engage in this art form as an extension of his painting. This experimentation was equally consistent with the work of other avant-garde painters of the 1920s: the November 1923, De Stijl exhibition by Theo van Doesburg and Cor van Eesteren caused Le Corbusier's associate, artist Fernand Léger, to comment that the artist and architect must mutually resolve the social functions of buildings by considering the walls as a component in the entire architectural equation. This is particularly relevant since, as a modernist, Le Corbusier might well have been accused of going to the extreme in stripping buildings of their decoration. That he transcended modernism might be, in part, attributed to the influence of Léger, for whom the exclusivity of modernism was "socially dangerous." Léger appealed to architects like Le Corbusier to employ artists to enliven the "dead surfaces" of their designs by engaging in a "contract" with the wall to transform it from architectural skeleton to art piece. Thus, just as modern architecture "freed the wall" from Art Nouveau, Léger believed murals relieved the "cheerless soberness" of public architecture. This emphasis on murals as an architectural element was consistent with Le Corbusier's interest in the wall as a two-dimensional element within a three-dimensional space. The architectural composition was a setting for modern man and the mural an element within the pictorial space, like a painting, but freed from the confines of its frame.

That Le Corbusier was aware of and participated in the contemporary practice of employing murals as an architectural tangible is apparent by virtue of his familiarity with Léger's murals at sites like Nôtre-Dame-de-Toute-Grace (1949), the Milan Triennale (1951) and the United Nations General Assembly Hall (1952), as well as Henri Matisse's work at the Chapel of the Rosary at Vence, France. By abandoning the predictability of Purism for a new

art inspired by the cinema, modernism and advertising, Le Corbusier was able to assimilate their vocabulary of devices such as outlining and free form to establish poster-like, anthropomorphic works that had no basis in either geometry or the machine age. (Albeit, Beatriz Columina argues all three of these elements were a part of Le Corbusier's Purist aesthetic.) Regardless of whether these shapes represented the contrast between nature and the mechanical, as Kuh suggests, or are an expression of rationalism, they represent a departure for Le Corbusier and evidence of the significance of his art production to his ideas about architecture, as seen at projects like Ronchamp chapel. Certainly, Le Corbusier's large-scale tapestry-murals of the late 1940s – or "mural nomade" as he called them – re-articulated the ambiguity between architecture as art and art as architecture, just as his polychromatic ceramics demonstrated his interest in the sculptural premise of architecture.

3.4.3 Conclusions About Le Corbusier's Attitudes Toward Art in Architectural Production

In considering Le Corbusier's texts as a whole, certain themes concerning his attitude towards "art as decoration" compared to "architecture as art" and "architecture as primary" become apparent.

We have seen that Le Corbusier's attitude about art as a decorative application to architecture was informed by Owen Jones' Grammar of Ornament (1856), in which Jones proposed that ornament should be based on geometrical constructions. Although his early career was marked by an interest in what Brooks refers to as decoration, light and pattern, more so than three-dimensional architecture, Le Corbusier was disdainful of much of the architecture he encountered during his travels, in particular, Vienna's " sanitary" secessionist architecture, which killed his "purely plastic conception of architecture."[173] His contempt for movements that reached backwards to long-dead styles and institutions was apparent in his denigration of styles as being inconsequential to great architecture, which employed man's faculties by its abstraction and affected the emotions through its physical properties of mass and surface illuminated by light.[174] By discarding the "the old clothes of a past age" that left architecture in a diseased state that confused art with mere decoration, Le Corbusier was able to respond to the Machine Age in a manner that supported the new order, surpassing the employment of devices such as chandeliers, wallpaper and faux-stucco stone, that he lectured were impertinent to the modern age, with the clean, efficient geometrical constructs.[175]

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[173] Brooks 150.
[174] Le Corbusier, Towards 26.
[175] Le Corbusier, Towards 94-5, 120.

Peter Sereyni notes that Le Corbusier's period of most intensive exploration, between 1918 and 1922, occurred in the company of other painters, sculptors, poets and musicians – "A world which had nothing to do with propriety, conventionality, and established order, qualities which one usually associates with the world of architecture."[176] This sociological approach aids in the understanding of Le Corbusier's sense of architecture as art form. Informed by the simple, folkloric architecture of his travels, readings of other architects and architectural critics including Hippolyte Taine's Voyage en Italie, which inspired in him an appreciation of the "sublime beauty of nature," as well as his own research into concepts about the integration of man, spirit and nature, Le Corbusier considered architecture to be poetic device.[177] Le Corbusier remained sympathetic to Taine's suggestion that the symmetry of forms in architecture excite and imitate relations that are particular to the realm of nature and, as such, attempts to disengage works of nature from the complexity and laws under which they operate to convey abstract concepts in a manner the common person can understand. Turner points out that Le Corbusier seldom referred to the buildings he witnessed in his voyage in structural terms. Rather they were described as geometric forms, an interweaving with music and other forms of art, much as Provensal proposed, in the pursuit of the divine "Idea." Thus, these researchs and readings informed Le Corbusier's thinking about the transendence of architecture from the mundane.[178] Further, as has been alluded to, Le Corbusier's ideas about architecture as art are apparent in his appreciation of the "Romantic view" of art and architecture, inspired by the "sobriety," technical skill and organization of German architecture, much the same as the readings of Hermman Muthesius influenced his interest in the simple forms of American grain elevators and the functionalism of bridges and railway stations. Also significant to Le Corbusier's belief in architecture's higher purpose – the integration of spirit and mind through "innate plastic forms" – was the modulating influence of author and artist artist Charles-Albert Cingria, who sensitized him to the formality and "brutality" of an architecture founded on utilitarianism. Cingria re-emphasized for Le Corbusier the importance of spiritual meditation and of an artistic elite characterized by refinement and sensitivity, what Turner refers to as "an elegant Classicism set in an unspoiled mountain landscape."[179] Turner reflects on the essential difference between Le Corbusier and other prominent architects when he comments: "To Viollet-le-Duc or Perret, architecture would be

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[176] Peter Sereyni, "Le Corbusier, Fourier, and the Monastery of Ema (1967)," Le Corbusier in Perspective, ed. Peter Sereyni (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1975) 103.

[177] Turner suggests Le Corbusier was so taken with the symbolism of geometric forms, particularly circles and squares, and the naive purity of the white forms he discovered that he imbued them with metaphorical significance. Turner 95. Hippolyte Taine, Essay XIII: A Philosophy of Art (New York: Leypoldt and Holt, 1867). <http://www.worldwideschool.org/library/books/lit/essays/The Unseen World.>

[178] Turner 42.

basically the patient empirical solution of problems by a rational and economic application of the materials and techniques at hand, but to Jeanneret it is a solitary search for truth...which when found then allows one to "create" and thus be an Artist."[180] Thus, since Le Corbusier thought of art as poetry that evoked sensation via a harmonious union with universal laws, he equated art with the joy of creation and, by so doing, placed architectural production within the realm of art.

Finally, Le Corbusier's beliefs about architecture as primary was characterized by his acquaintance with the "diapason" of social phenomenon that enabled him to grasp the concreteness of the architect's task – to "adjust one's nascent dream to the countless elements which must ultimately accept its products as useful."[181] By turning from the teachings of the academies – "the burdensome accumulations of vague, pedantic and dangerous teachings" – Le Corbusier was able to promote architecture as the achievement of functional, efficient, healthy and pure structures determined by the spirit of the age.[182] This approach of striving to find new and innovative responses to architectural concerns, stimulated by modern technologies, was characterized by devices such as the sashless window, to which he attached great architectural significance, and by the searching among vernacular architecture for "human houses" inspired by principles of efficiency, economy, lyricism and intelligence.[183] Manifestos such as his five points of architecture supported his belief that academicism in architecture denied the revolutionary nature of the creative act, inspired by "faith, courage, imitation, enthusiasm, curiosity and the joy of discovery."[184] The influence of the machine in replacing the lyricism of local habit in architecture enabled the architect to transcend the role of a stylist to become a planner, an organizer of building systems, who articulated the design based on the requirements of the architectural programme. This approach elevated the role of the architect to one of the professional, consistent with Le Corbusier's beliefs about architects as noble spirits.

The sources and viewpoints Le Corbusier consulted and adopted during his career were central to his design aesthetic. His early training, Purist experiments, concepts about principles such as universal laws and nature compared to geometry, involvement in collectivist notions of urban planning, participation in the CIAM dialogues

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[179] Turner 91.
[180] Turner 54.
[181] Le Corbusier, Decorative 213.
[182] Le Corbusier, "Twentieth-century living and twentieth-century building," The Rationalists: Theory and Design in the Modern Movement, ed. Dennis Sharp (London: Architectural Press, 1978) 73.
[183] Le Corbusier, "Twentieth-century" 74.
[184] Le Corbusier, "Twentieth-century" 76.

and continuing research into building principles mediated his response to architecture. They informed later projects such as Ronchamp, while providing a rationale central to his desire to attain order and reason even in the face of the irrationality of the creative process.

3.5 Contempary Debates – CIAM, Other

3.5.1 1900 to 1930s

To appreciate the environment in which Le Corbusier's major architectural pieces emerged, it is also important to be aware that, contemporaneous to his design commissions, Le Corbusier was involved with other prominent architects in a vigorous debate about the nature of art and architecture and, in particular, about the place of ornamentation, painting and sculpture within architecture. Examining contemporary thought about this debate illuminates the context in which Le Corbusier's own ideas about the symbiosis between art and architecture emerged.

What is significant about the immediate post-1900 period is the rejection, by many architects, of the unadorned, functional, modernist, period form, with its abandonment of traditional styles. C. and A. Williams-Ellis commented on this sentiment, arguing that ornament was to architecture as simplicity was to the structure: "No architect living in a vigorous epoch would forgo the use of ornament any more than he would forgo the use of simplicity."[185] Frank Lloyd Wright (1867 to 1959) considered form and function to be synonymous and ornamentation to be a realization of the nature of the structure to be adorned. Although applied ornament as a form of spatial expression was not among his techniques, Mies van der Rohe (1886-1969), writing in 1928, referred to building art as neither the achievement of functionalism nor formalism, but rather "the spatial expression of spiritual decisions."[186]

The movement to which Le Corbusier's design aesthetic is most frequently compared – the Bauhaus, represented by the Bauhaus School of Art, Design and Architecture, located in Weimar and then Dessau, Germany, between 1919 and 1933 and founded by architect Walter Gropius – also deserves cursory reference. Gropius described the

[185] C. and A. Williams-Ellis, The Pleasures of Architecture (London: Jonathon Cape Ltd., 1924) 78.
[186] Ockman, Architecture Culture 163.

Bauhaus as a response to the technological environment in which modernist architecture emerged.[187] He envisioned the architect as re-integrating basic human needs with industry: "My belief is that...our disoriented society badly needs participation in the arts as an essential counterpart of science in order to stop its atomistic effect on us."[188] Artistic design was to be integral to life, rather than "art for art's sake."[189] Thus, the Bauhaus combined technical training with instruction in volume, color and composition on the premise that: "What we preached in practice was the common citizenship of all forms of creative work, and their logical interdependence on one another in the modern world."[190] While the Bauhaus was primarily an establishment for research and exploration into building systems, the problem of integrating art into architecture was approached as an element in the total design activity. Gropius describes this as "saving the mass-product and the home from mechanical anarchy and...restoring them to purpose, sense and life" so that art became a constituent part of everyday life.[191] By relieving architects of the constraints of individual labour and imbuing them with "an objective knowledge of optical facts" (such as proportion and colour) and of old and new forms and technologies, Gropius believed it was possible for architects to invent new orders that would advance their architecture beyond traditional styles.[192] He articulated this way of seeing as "the mutual tension between the subconscious and conscious faculties of our existence...(that) fluctuates between reality and illusion" and contributes to artistic creation.[193] Gropius shared many of Le Corbusier's design concerns – standardization, the search for efficiency – however, the emphasis on art as an antidote to industry through encouraging the integration of the abstract arts and architecture brings his thoughts closest to those articulated by many architects of the period. For these architects and the Bauhaus, architecture was primary, but informed by the processes of art (the emphasis on design principles such as form and colour). Ronchamp illustrates that, for Le Corbusier, the art is integral to the architecture to the extent that the architecture is art and the architecture could not respond to the demands of the form without the art.

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[187] Gropius considered the New Architecture to be a new spatial vision made possible by the intellectual and technological achievements of the age. Walter Gropius, The New Architecture and the Bauhaus (Boston: Charles T. Brantford Company, n.d.) 24.
[188] Walter Gropius, Scope of Total Architecture (London: George Allen & Unwin Ltd, 1956) 162.
[189] "Our ambition was to rouse the creative artist from his other-worldliness and reintegrate him into the workaday world of realities; and at the same time to broaden and humanize the rigid, almost exclusively material, mind of the business man." Gropius, New 90.
[190] Gropius, New 85.
[191] Gropius, Scope 24.
[192] Gropius, Scope 29, 58.
[193] Gropius, Scope 38.

Any examination of Le Corbusier's attitude toward the relationship of art to architectural production is incomplete without consideration of how he arrived at his beliefs and those documents and individuals that influenced him. Le Corbusier's conservative introduction to art and architecture, consistent with the thinking of the École des Beaux-Arts and traditional French academies, is evident in his early drawings and Swiss villas, although he also experimented with new forms, such as Art Nouveau. Le Corbusier's career emerged during an era of innovation, made possible by the availability of new materials such as reinforced concrete, steel and iron, and by his exposure to leading modernist architects, including Peter Behrens and Auguste Perret, whose 25b rue Franklin (1903) and Garage Ponthieu (1905) were among the first forms to exploit aesthetically reinforced concrete frame construction.

Although his 1920s and 1930s projects were generally modernist – emphasizing function, utility and honesty in materials while employing modern materials and technology – Le Corbusier's appreciation of the relationship of art to architectural production was demonstrated in the use of devices such as polychromy and curvature, as well as elements such as rooftop terraces that offset the rationalism of his designs by juxtaposing them with nature. Le Corbusier's Swiss upbringing, his studies at La Chaux-de-Fonds' Ecole d'Art, his readings of the works of Provensal, Callignon, Ruskin and Shuré and his brief internships with Perret and Behrens contributed to an evolving appreciation of the relationships between humans, nature, art and architecture.[194]

Some of these influences can be traced to such readings as French architect Henri Provensal's tome, L'art de demain, which urged artists to engage in the discovery and application of universal laws by exposing the essential forms of nature and to pursue unity and harmony through new and universal art forms such as the cube, which he considered to be "the most perfect and universal, and thus the most expressive of ideal reality."[195] Turner suggests that Provensal's assertion that architecture took its inspiration from mineral forms stimulated Le Corbusier's interest in the correlation between the structure of crystals and structural supports.[196] Similarly, Provensal's concern for primary forms was manifested in Le Corbusier's belief that architecture was "first of all an abstract, sculptural activity, which ought to employ primary volumes because they are purer and more Ideal."[197] As Turner comments: "The idealistic assumption that there exist perfect formal principles or Ideas, which can ultimately be discovered and embodied by the artist, was probably the most fundamental influence of Provensal on Jeanneret. All of the more specific

[194] Turner 8.
[195] Turner 15, 19.
[196] Turner 19.

influences – such as the preference for "cubic" forms and the definition of architecture as (an abstracted form comprised of) the play of volumes under light – are corollaries, in Provensal's aesthetic, of this idealistic assumption."[198] This concern with principles and ideals is seen in Le Corbusier's Purist designs and in manifestos such as his five principles of architecture.

Of similar influence was Mythlogie figurée de la Grece, by Maxime Callignon, which Le Corbusier acquired in 1903 and which intimated the existence of classical norms that architects might use to resolve artistic problems. Also significant was his reading of Les grands initiés, by Edouard Schuré, given to Le Corbusier by L'Eplattanier in 1907 and which compared Pythagorean mythology to a mathematic system of divine members. Schuré's text, as well as L'Eplattanier's belief in local forms (such as the lotus in Egypt and the acanthus in Greece) as the inspiration for art, may have inspired Le Corbusier's journey to the East, which acted as the stimulus for many of his philosophical musings.[199] Le Corbusier's writings during this period indicate that he was also influenced by the decorative artists Lalique and Gallé and the architect Guimard; he considered Gallé requisite reading for architects and appears to have adopted Lalique's sinuous Art Nouveau style for his watchcase designs while still an engraver in La Chaux-de-Fonds. Other influences during this early period of his career were John Ruskin, with his concern about the correlation between art and architecture; Owen Jones, who employed the decorative tradition within the architectural idiom; and the Art Nouveau designer Eugène Grosset (also referred to as Grasset). Nietzsche's Thus Spake Zarathustra (1883-85), like L'art de demain, contributed to Le Corbusier's understanding of the architect as a spiritual, noble hero, "seeking out ideal principles and absolute truth" while pursuing the "art of tomorrow," as Perret had taught him.[200] Jencks refers to this as the concept of "...the 'superman' struggling among men and the necessity that he destroy conventional wisdom before he can realize his revolutionary ideas."[201] Le Corbusier's ideas about beauty, harmony and unity, as well as his search for generalization, universality and absolute formal truths, in both art and architecture, can be attributed to this period of introspection, as can his interest in decoration, the elements of the Modulor and his heroic projects, such as his Palace of the Soviets (1931) in Moscow.

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[197] Turner 22.
[198] Turner 24.
[199] Turner 6.
[200] Turner 61.
[201] Jencks, Tragic 25.

Thus, Le Corbusier's perception of the role of art in architectural production was that of the complex interlocutory between technology and the aesthetic demands of the form. This dynamic was manifested in his machinist pieces between the 1920s and the 1930s, concluding with his pivotal Cité de Refuge (1933).

3.5.2 Post 1930

The discourse about the relationship of art – more particularly ornament – and architecture continued to dominant architectural thought during the 1930s through 1950s. A series of dialogues referred to as the CIAM (*Congrés Internationaux d'Architecture Moderne*) discourses, and ongoing debate among architects about the role of the allied arts in architecture, are significant in understanding the environment in which Le Corbusier's interest in symbiosis between the arts evolved. The formation of CIAM in 1928 by, among others, Le Corbusier; Giedion; members of the Swiss Werkbund; and Gabriel Guerrekian, signaled the recognition of the influence of the modernist movement on contemporary architecture. CIAM was intended to advance the cause of new architecture in an era of neo-Classicism. The efforts of Mies van der Rohe and Gropius to "cleanse" modern architecture of Expressionism and similar influences were as decisive to CIAM's foundation as was the involvement of Mart Stam and Hans Schmidt, who represented a collective of avant-garde architects intent on creating an international corps of architects.[202] The "convergence" of factors that contributed to the formation of CIAM was coincident with a movement to promote "the new architecture" to political interests and to solidify a form of architecture that was modern in its social and economic aims; Giedion believed Gropius, van der Rohe, Le Corbusier, Oud, Van Eeasteren, Mart Stam and Hans Schmidt would participate in the effort to define modern architecture.[203] This objective of linking specific "formal and technical strategies" for the purposes of achieving social transformation serves to explain some of the motivation for Le Corbusier's participation in CIAM.[204]

That Le Corbusier considered CIAM to be an agent of social change that could intervene in the physical environment "for the common good" was, to some extent, realized; Le Corbusier's proposal for a Charter of Habitat to replace the Athens Charter received a hearing at CIAM in 1953. Similar efforts to position CIAM on questions of aesthetics in

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[202] Giedion defined CIAM's mandate as: "a) To formulate the contemporary program of architecture. b) To advocate the idea of modern architecture. c). To forcefully introduce this idea into technical, economic and social circles. d). To see to the resolution of architectural problems." As cited in Eric Mumford, The CIAM Discourse on Urbanism, 1928-1960 (Cambridge, Mass.: The MIT Press, 2000) 10.
[203] Mumford, CIAM 11.
[204] Mumford, CIAM 12.

architecture and on what CIAM considered to be a synthesis between architecture and the arts were inconclusive, although Le Corbusier reportedly was pleased with Giedion's suggestion that art should be a "preoccupation" for CIAM members. Mumford remarks that Giedion's and J. M. Richards' "Report on the Plastic Arts" to CIAM (February 1950), intended to determine how artists and architects could collaborate on a synthesis of the arts and whether such a collaboration would be acceptable to the public, was inconclusive, exposing the "confusion and underlying political conflicts behind CIAM's effort to explicitly address aesthetic questions," although there was some discussion that public places would be most appropriate to these efforts.[205] Conversely, Giedion points out that the 1947 CIAM Bridgewater conference applauded the re-integration of the plastic arts and the evolution of a corresponding clarity about contemporary artistic expression. CIAM's statement of aims included the desire to "enlarge and enrich the aesthetic language of architecture in order to provide a contemporary means whereby people's emotional needs can find expression in the design of their environment."[206]

The tone of the CIAM discussions of 1947 is evident in the concerns expressed by the MARS group of England about "the emotional reactions of the common man to modern art, and especially to architecture," as well as J. M Richards' contributions to the question of whether architects should design according to their own consciousness or popular taste.[207] In "Contemporary Architecture and the Common Man" (ca. 1947), Richards asks how architecture should account for public taste so as to create a bond with those who view it. This desire to humanize architecture by re-introducing the common man as its benefactor, rather than aspiring to elitism – "an art of the kind that is appreciated only by connoisseurs" – recognizes architecture's function as an interpreter of modern technology in a visual form. Giedion expressed this as the need to "take into account those qualities in buildings that have, at the present moment, a symbolic or emotional significance for ordinary people, so that architecture shall remain an art in whose adventures they can share."[208] Giedion acknowledged the interest in the aesthetic but argued that, with the expiry of rationalism, architecture must resume its collaborative nature.[209] The 7th CIAM congress acknowledged the desirability of a "synthesis" of the plastic arts and called for the concerted participation of artists, sculptors and architects. The 1947 Bridgewater congress further considered the question of the meaning of art in the modern

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[205] Mumford, CIAM 198.
[206] Giedion, Decade 17.
[207] "The second no less alarming problem was the fact that close contact between the architect and planner, painter and sculptor, has been lost for a century and a half. Is it possible that they will ever again be able to work together from the outset, as was usual in other periods...." Giedion, Decade 30.
[208] Giedion, Decade 33.

period and how artists and architects could interact with public buildings. Among the issues the Bridgewater participants debated was the "impact of the Sister Arts" (architecture, painting and sculpture), including whether and how they might collaborate, at what stage, how to overcome the "difficulties" caused by their separation and when the painter or sculptor might take precedence over the architect.[210]

Coincident with this interest in a collaboration between the arts, the conclusion of the Second World War brought to the forefront concerns about architecture's populist appeal, characterized by comparisons between modernism and social realism.[211] Giedion emphasized the importance of collaboration between architects, painters and sculptors to stimulate a modern "optical vision." A treatise, "Nine Points on Monumentality" (1943), commissioned by the American Abstract Artists and expounding upon the writings of Giedion, Josep Luis Sert and Léger, opened this discussion.[212] Giedion's advocacy for monumentality, which already had support among many Swiss architects, was countered by those architects who promoted a return to traditional technique and the village plan as an idealized model of social collectivism. This New Empiricism was widely considered a suitable postscript to Classicism. While it is not necessary to explore the concept of monumentality for the purposes of this thesis, it is appropriate to note that the post-war environment stimulated a re-examination of the role of art in architecture, both as supplemental and as integral to the design process.

Other important voices who emerged in the 1940s to critique the concern about modernism and the synthesis of art and architecture included Lewis Mumford who, writing in 1946, commented that while some critics considered the "inclination" to incorporate subjective design elements into modern design to be a rejection of functionalism, yet the impulse to "play with the 'feeling' elements in design – with colour, texture, even painting and sculpture" was irrepressible.[213] Mathew Nowicki suggested the shift that occurred during the 1940s acknowledged that architecture is representational, rejecting the "functional exactitude" that emerged in response to the "new taste for purity and simplicity of form" engendered by Cezanne and Synthetic Cubism (although ironically it is this Synthetic Cubism

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[209] Giedion, Decade 35. Giedion points out that prominent sculptor Barbara Hepworth was among those who considered architects to have failed to achieve unity with painters and sculptors. Giedion, Decade 35.
[210] The Bridgewater Questionnaire. Giedion, Decade 31-2.
[211] J. M. Richards argued that modern architecture held little interest for the masses.
[212] Le Corbusier's "Open Hand" sculpture at Chandigarh and the 1938 Monument Paul Vaillant Couturier are representative of the interest in monumentality. Mumford, CIAM 150.
[213] Lewis Mumford, "The Skyline [Bay Region Style]," Joan Ockman, ed. Architecture Culture: 1943-1968: A Documentary Anthology (New York: Rizzoli International Publications, 1993) 109.

that Le Corbusier rejected in the 1920s).[214] Nowicki considered the emergence of the Modulor to be an indication that architecture had evolved from quantitative to qualitative – he suggested the Modulor was the vehicle to achieve this, a "measure of beauty" rather than "functional" space or time that acknowledged that the essence of architectural invention was paramount to the pace of its attainment.[215] Attendant in this was a surety that although form might change through a process of individual discovery, the "object" of architecture remained the same. The decoration of the structure, rather than form, represented an era of what Nowicki deemed functional flexibility.[216] J.J.P. Oud argued modernism was deficient due to its creation of a functionalism that is aesthetically arbitrary, rather than acknowledging architecture as an expressive medium.[217] Joseph Hudnut pointed to the detachment of architecture from the expressive idea as evidence of the ineloquence of modernism.[218] If architecture is space patterned after a person's spirit, besides being expedient, economical and functional, it must also be art, whereas painting and sculpture are accessories to architecture. Reyner Banham, in contributing further to this discussion, notes the white machine-aesthetic style not only wasn't inherent in the "technical and economic realities" of the 1920s and 30s, it was a reaction to Cubism.[219]

To position Le Corbusier within this environment of reconciliation and reconsideration, it is necessary to appreciate that the architect spent the post-WW II period atoning for his collaboration with the Vichy regime between 1940 to 1942, a collaboration that resulted in his appointment to the Vichy reconstruction commission, the publication of his "Destin de Paris" Radiant City manifesto for the reconstruction of Paris in 1940 and the completion of his Athens Charter, finally published in 1943. Although abandoned by the Vichy government in early 1942, Le Corbusier attempted to re-establish his ties with pro-Vichy government officials by publishing his own version of the CIAM doctrines through the newly-founded ASCORAL (*Assemblée de constructeurs pour une renovation*

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[214] Nowicki argues architecture became "idealized" and "dematerialized." The structural challenges in modernism bowed to "functional exactitude" so that buildings became obsolete once they were no longer functional. Matthew Nowicki, "Origins and Trends in Modern Architecture," Architecture Culture 1943-1968: A Documentary Anthology, ed. Joan Ockman (New York: Rizzoli International Publications, 1993) 152-4.

[215] Nowicki, "Origins" 154.

[216] "Art tends not only to discover the truth, but to exaggerate and finally to distort it. It may be that in this distortion lies the essence of art." Nowicki, "Origins" 156.

[217] "One could say with some exaggeration: it (modernist architecture) is the bass to the music but not its essence." J.J.P. Oud, "Mr. Oud Replies," Architecture Culture 1943-1968: A Documentary Anthology, ed. Joan Ockman (New York: Rizzoli International Publications, 1993) 104. Oud's 1940s Shell Building was criticized by Architectural Record as peasant art.

[218] Despite the freedom modernism gave architecture to model and direct space, it was deficient in a vocabulary to achieve the idea of form. Hudnut, "Post-Modern," 74.

[219] Banham calls it "an applied style, transferred from post-Cubist painting under the pressure of fashion." Reyner Banham, The New Brutalism: Ethic or Aesthetic (New York: Reinhold Publishing Corporation, 1966) 86.

architecturale).[220] During this period, he also published La maison des hommes and Sur les quatres routes (1941), both reconstruction-oriented documents, followed by Les trois établissements humain (1945) and Manière de penser l'urbanisme (1946). In spite of his obvious interest in reconstruction, other than his Unité projects, Le Corbusier's role in post-war reconstruction was limited and his involvement with CIAM marred by his criticism of the work of the Swiss faction.[221] Le Corbusier concluded the immediate post-war period leading up to the Ronchamp commission bitterly in agreement with other leading thinkers about the relevance of the synthesis of art with architecture, but disappointed with his participation in the design for the United Nations headquarters in spring 1947 and with his proposal for a new society led by a super race of technocrats, scientists and experts discredited.

[220] Le Corbusier believed this strategy would enable the continuation of CIAM in a post-war environment.
[221] Mumford, CIAM 154.

CHAPTER IV

LOOKING AT RONCHAMP: A CASE STUDY

4.1 Introduction to the Case Study

Illustrative of Le Corbusier's interest in the symbiosis between art and architecture (or the concept of mutualism, as symbiosis is defined for the purposes of this thesis) is his Roman Catholic pilgrimage chapel at Ronchamp, in northeastern France. While the project can be viewed in isolation, some critics, Gardiner included, consider it to be the logical outcome of all of Le Corbusier's experiences: "There are the memories of the Greek island villages which the architect saw in his early travels; the scattering of openings on sunny white backgrounds coincides with the rough irregular imagery of French peasant architecture; there is the ghost of the classical past in the single clean statement of the sculptural object on the top of a hill; there is a freedom of nature and the painter in the interlocking, overlapping, sweeping walls of the superb plan."[222] Extrapolating from Gardiner's interpretation and within the context of the hypothesis that Le Corbusier's art and architecture are mutually influential, the case study will examine both the essentialism of symbiosis for Le Corbusier and the contribution of critical writings and theories about Ronchamp to the understanding of the project's significance to this question of the intent of the design. The architectural programme will be discussed to gain an understanding of the influence of the requirements of the commission on the design, the role of the Roman Catholic Church and the architect's design purpose. The case study will conclude by considering the importance of the design to ideas about the symbiosis of art and architecture.

4.2 Evidence of Intent at Ronchamp

4.2.1 The Architectural Programme

As might be expected of a religious commission of a post-war Roman Catholic chapel, the architectural programme at Ronchamp embraces premises of sanctuary, pilgrimage and humility. Le Corbusier was able to enjoin these

concepts because of his appreciation of the sacredness of the site and of the place of the Roman Catholic Church within the circumstances of modernism.

4.2.1.1 Requirements of the Commission

Le Corbusier was approached to design Ronchamp in 1950 by the Besançon Commission d'Art Sacre of the Roman Catholic Church. The timing of the commission is significant in that Ronchamp represents a post-WW II reconstruction effort. The 1944 liberation of France, one of the few remaining great powers in Europe, engendered a sense of rebirth, evidenced by reforms introduced by a short-lived coalition government of Socialists, Communists and Republicans and a re-industrialization, particularly as it affected the building of housing and essential community services, such as schools and hospitals. Although France experienced a difficult period of post-WWII reconstruction and modernization, this climate of redevelopment was a stimulus for innovation.[223] Ronchamp embraced the spirit of renaissance, as well as the renewal of spirit and faith through the reconstruction of cultural and religious institutions such as the Roman Catholic Church.

The siting of Ronchamp is peculiar to the commission, in that it encompasses diverse concepts of religious sanctuary dating to the 4th century; the relationship of the site to military defence by virtue of its history as a Roman fortress and its positioning along a prominent invasion route; the role of Catholicism as a rival to the Calvinist and Lutheran beliefs of the shared landscape's Swiss and German inhabitants; the site as a location of pagan worship as a former sun temple; as well its significance as a place of miracles and pilgrimage. Importantly for Le Corbusier, the site faces north to the Voges foothills, east to the mining town of Belfort, west to the Langres plateau and South to the Jura mountains, enclosing the four horizons and presenting an aspect not unlike his much-admired Acropolis. For Le Corbusier's purposes, the site and chapel were themselves symbiotic elements. [224]

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[222] Gardiner 24-5.
[223] Address by Ambassador François Bujon de l'Estang to the French Institute Alliance Française, "France and the United States: seen through each other's eyes," New York, November 30, 2000, accessed 5 October 2004, <http://www.info-france-usa.org/news/statmnts/2000/be3011.asp>.
[224] Frampton 168.

Significant to the commission is the chapel's relevance as a pilgrimage site, since that constraint affects the conceptual programme. We know that Le Corbusier referenced the site as one of pilgrimage on specific festival days, but also of daily pilgrimage for the chapel's adherents and admirers. This acknowledgement was translated into the subsequent design through a number of subtle, yet ritualized devices. Pilgrimage sites – whether associated with patron saints, as places of worship to petition God (such as to seek penitence, express gratitude through festivals or to attain solitude or spiritual growth) or as healing places dedicated to the Virgin Mary, such as Lourdes and Fatima – involve an individual test of faith, typically comprising an arduous and lengthy journey that the architecture frequently recreates as ritual.[225] The pilgrimage may consist of successive stages of spiritual preparation and separation from everyday life and experiences, coupled with ritualized behaviors and dress that create a "bridge between the pilgrim's old life and the hoped-for healing cure or spiritual transformation."[226] This pathway to the church, whether ritualized or secular, is typically engendered in the site and building design, contributing to the experience of arrival and revelation. Upon arrival, the pilgrim might pass through a series of obstacles or directional devices, such as gates or labyrinths, or a series of rites, such as praying at the Stations of the Cross, to attain the place of meditation; the return to society is in the form of a transformed spirit. Le Corbusier expressed the pilgrim's extended journey by situating the approach to the chapel along a pathway that obscures the view of the chapel and in proximity to a concrete abutment that must be breached to reach the grassy approach to the concave south wall, which serves to collect worshippers and redirect them to the outdoor chapel and pulpit in the chapel's east face. Thus, by addressing the complexity of the access, Le Corbusier demonstrated his understanding of long-held traditions of pilgrimage church architecture.

Besides its religious function, the site has constraints of a more practical, physical nature. Setting aside, for the interim, arguments that the design is "a visual echo of the landscape," the volumetric proportions of Ronchamp were necessitated by the requirement for the extensive use of reinforced concrete and rough rubble. The programme was constrained by a lack of road access to convey building materials to the site, as well as by a specification of the Bescançon commission that salvaged material should be used for the construction, both as a measure of economy and as evidence of the humbleness of the chapel's materials. This accounted for the use of a concrete shell, with rubble from the former chapel, ruined during the Second World War, serving as fill which, with the exception of the

[225] "An internalized world was created in which the pilgrim's journey is re-created in the architectural setting – the spiritual path and place." Thomas Barrie, Spiritual Paths and Sacred Space: Myth, Ritual, and Meaning in Architecture (Boston and London: Shambhala Publications, Inc., 1996) 28.

south fall, is sprayed with Gunnite coated masonry, the thickness and "curvilinear plan-form" contributing to the structure's stability.[227] Le Corbusier admitted the chapel walls were rendered "deliberately heavy" in order to exploit the fill, while allowing for a frame of reinforced concrete columns, sited within the walls and on which the roof balances; the separation of the roof from the walls is intended to permit a thin slice of natural light to illuminate the chapel interior. The south wall itself is formed from piers, beams and joists united by a skin of sprayed concrete, while the chapel floor is cement paving, the towers masonry and the domes sprayed concrete. Acknowledging the constraints of the church's requirements, the limited budget (consisting generally of a war grant and funds raised by the parishioners) and the difficulty of transporting materials to the isolated site, there is another explanation for the choice of reinforced concrete: Le Corbusier's exploration of organic form could scarcely have been achieved in anything but a porous material "kneaded and shaped into the mould of the design" – what Pauly refers to as Le Corbusier's realization of his "language of plasticity."[228]

4.2.1.2 Role of the Roman Catholic Church and its Adherents

The unique circumstances of post-war Europe, with its concern for renewal and renaissance, and the liberalism of particular factions of the Roman Catholic Church are further integral to the innovation of Ronchamp. The Mediator Dei encyclical, proclaimed by Pope Pius XII in 1947, encouraged the employment of modern art and architecture in church buildings. McKay suggests the Mediator Dei was inspired by the Pope's interest in "aesthetics, function, modernity, and the humanist traditions with regard to man's contributions to church ritual."[229] The encyclical addressed issues of functionalism, spatial arrangements, construction materials and meditative space that converged with Le Corbusier's beliefs and the desire of certain avant-garde Roman Catholic priests – represented, for Ronchamp's purposes, by prominent members of the Lyons chapter of the Dominican order – to stimulate a renewed interest in the church by engaging modern artists and architects in their design, as apparent at churches at Audincourt, Assy and Vence.

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[226] Barrie 29.
[227] The Library of Contemporary Architects, Le Corbusier (London: Thames and Hudson Ltd., 1970) 130.
[228] Pauly, Le Corbusier 101.
[229] Frances Sherry McKay, "A Study of Le Corbusier's Notre-Dame-du-Haut, Ronchamp as a Twentieth-Century Pilgrimage Chapel," MA thesis, University of British Columbia, Vancouver, October 1979, 15.

L'art sacré editor Father Alain Couturier, also an artist and among Le Corbusier's supporters on the failed La Sainte-Baume commission (1947), was responsible for encouraging the Besançon Commission for Sacred Art to engage Le Corbusier for the Ronchamp commission and for mediating the relationship between the Church hierarchy and many other contemporary artists, among them Henri Matisse, Léger and Marc Chagall. Couturier, a member of the Parisian Dominican Order, was responsible for the creation of the Unités des Artistes Modernes in 1925, intended to establish religious art as a preoccupation for a generation of artists and craftspeople, through which he first met Le Corbusier. Over two decades later, Couturier referred to January 20, 1951, the date a diocesan committee approved the design for Ronchamp, as symbolic of the renewal of Christian art.

Nevertheless, Le Corbusier was sufficiently sympathetic to Ledeur's entreaties about the significance of the pilgrimage site and its physical possibilities, as well as those of Father Regamy, who advocated for a "living art" of pure forms, to assume the commission and set aside his initial objections about the futility of designing for a "dead institution" (the church).[230] McKay observes that whereas Ledeur established only functional parameters for the architect, Regamy "expressed his ideals in terms such as harmony, proportion, an attendance to line and rhythm, powerful and beautiful volumes and masses, and in ingenious distribution of light and shadow."[231] Thus, while Ledeur and Le Corbusier shared an interest in beauty, truth and "spiritual architecture" that enabled Ledeur to secure Le Corbusier's commitment by assuring him he would retain artistic integrity over the project, in accepting the commission, Le Corbusier was also responding to a concern shared with Regamy for the possibilities of the architectural programme, which he exploited to "create a place of silence, of prayer, of peace and of internal joy."[232]

Similarly, Couturier's faith in Le Corbusier extended to an appreciation of his "sacred essence." Le Corbusier related architecture and sculpture to the attainment of ineffable space, "which Le Corbusier equated with the experience of the miracle of faith...." – the aforementioned consummation of plastic emotion."[233] Couturier's personal correspondence with Le Corbusier purported that it was not the tenor of the artist's religious commitment

[230] McKay 22. Instructions from Canon Lucien to Le Corbusier. Frampton 167.
[231] McKay 22.
[232] Tim Benton, "The sacred and the search for myths," Le Corbusier: Architect of the Century, exhibition catalogue, eds. Michael Raeburn and Victoria Wilson (London: Arts Council of Great Britain and authors, 1987) 247.
[233] McKay 65.

that was significant to the revival of sacred art, but rather the moment of artistic inspiration: "To set off this renaissance, this resurrection, it is safer to turn to geniuses without faith than believers without talent."[234]

Quite beside this, Le Corbusier's interest in monastic life uniquely positioned him to undertake Ronchamp; elements of the design are reminiscent of the private cells of the monasteries he visited, evidenced in Ronchamp in the private altars, and of the pervasiveness of their silent, meditative spaces, replicated at Ronchamp in the primaeval, hollow (cave-like) interior. Perhaps Le Corbusier alluded to the monastic quality of the project in his design manifesto, Textes et dessins pour Ronchamp (1965), when he commented that: "The interior is also sculpture in the round (hollow), the four walls, the ceiling, the floor, everything is pressed into service in a disarming simplicity."[235] Hence, Le Corbusier was able to parlay the exquisite isolation of the site and of the chapel's meditative function into stimuli for the innovative design, while, through his research, by his separation of the congregation from the altar and the incorporation of objects such as the candlebra, rail and image of the diety to delineate the distinction between the sacred and the secular, also responding to Roman Catholic tradition.

4.2.1.3 Purpose of Le Corbusier's Design Programme

Irrespective of the requirements of the commission, Le Corbusier's design programme was essentially intuitive, while informed by considerations of the integral nature of art and architecture, the "visual acoustics" of the landscape and the pragmatic requirements of a Roman Catholic meditation and pilgrimage chapel. Ronchamp refers back to the Greek: the chapel towers echo the Serapeum at Hadrian's Villa, which Le Corbusier saw in 1911, while he credits his experiences in Greek villages to the systematic approach to design as a "coherent intellectual system" that employs geometry to explicate the proportion of the form to his experiences.[236] Ronchamp owes much to the Acropolis – its siting on the apex of the four horizons, its towers and whiteness: "As one looks at those three white towers one remembers that forty years earlier Le Corbusier had lived for a time in Athos and filled a sketch book

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[234] Miriam Rosen, "Sacre Bleu," February 2004, CompuServe, accessed 24 August 2004, <http://cssvc.travel. travelandleisure.compuserve.com/invoke.cfm?ObjectID=FF466860-3C84-431B-8C72D921A64BC045>.
[235] Le Corbusier, The chapel at Ronchamp (Oxford: Praeger, 1957) n.p.
[236] Le Corbusier, L'art decoratif d'aujourd'hui as cited in Guiton, Ideas 115.

with these little Greek churches."[237] Further, Le Corbusier was taken with the possibilities implicit in the duality of designing a small chapel meant to serve thousands of pilgrims, as he alluded to ca. 1908 while standing on the apex of Mt. Athos, when he compared the chapel of the Virgin to "the unleavened bread of an ineffable communion" for the pilgrims.[238] Further allusions have been made to resemblances to the Church of S. Maria in Rome. The concept of the "great form," as symbolized by the Parthenon and the Church of S. Maria, is itself amplified by Ronchamp's splendid isolation and domineering presence.[239] Perhaps Le Corbusier was recalling the monasteries of Karies, perched "like eagles' eyries" on the rock faces: "The Virgin has her altar on the great mountain consecrated entirely to her praise."[240]

Le Corbusier envisioned the design during his first glimpse of the site on May 20, 1950. The ensuing sketches are prescient of the final design. A pair of clay models from September 1950, produced four months after his initial June 1950 site visit, bring to mind Le Corbusier's polychromed sculptures, Ozon (1940) and Ubu (1947). Fortunately, Le Corbusier's sketchbooks document the thought process for Ronchamp. There are references to early influences: Ronchamp seems foreshadowed by a sketch (703) of a belfry; while Le Corbusier made no comment about this particular sketch, the resemblance is apparent.[241] Several Acropolis-like sketches further demonstrate his appreciation for classical architecture and symbolism, while, interestingly, Le Corbusier's sketchbooks also expose a more complex appreciation of Christianity and fellowship than were previously evident in his writings.[242] His preliminary impressions are contained in sketches 272 to 273 (D17) of summer 1950. The drawings are made from the Paris-Basel train and show a shapeless, but domineering structure that gazes in all directions. Sketch 274 captures the basic shape of Ronchamp's roof and outdoor pulpit. Sketchbook E18 of February 1951 chronicles the ultimate design: This series illustrates the punctured south wall and voluminous altar, along with Ronchamp's swayback roof (312), culminating in a sketch that anticipates the final design. This drawing allowed Le Corbusier to play with an intimidating cross figure (313, drawn from his memories of his initial June 9, 1950 site visit) and to scoop out the west facade, as well as the floor plan (314); Le Corbusier seemed to recognize, in these designs, that

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[237] Jordan, Le Corbusier 134.
[238] Le Corbusier, Journey 190; Benton, "The sacred" 249.
[239] Darling is among commentators who have pointed out that the chapel commands the brow of the hill. Elizabeth Darling, Le Corbusier (London: Carlton Books Limited, 2000) 22.
[240] Le Corbusier, Journey 181.
[241] Franclieu agrees. Fondation Le Corbusier, Sketchbooks, Vol. 1, 31.
[242] "(The) modern world having lost contact with or the memory of its deeper realities, would welcome the teachings of a new Jesus who is strong, simple and human." Fondation Le Corbusier, Sketchbooks, notation 459, Vol. 1, 22.

the vast south wall would be in regular shadow because of the voluminous roof (314).[243] A February 12, 1951 drawing contemplates a double tower – conventional for the west façade of Gothic churches, but also reminiscent of the grain elevators or nuclear cooling towers Le Corbusier admired. The twin tower re-emerges in sketch 322, where the volume of the south-facing roof is also apparent. The ovoid roofscape, as seen from the west horizon, is further revealed in his preliminary sketches (318). Le Corbusier was able to refine the shape in these sketches, as well as determining the water runoff channel for the roof (319-20): sketches 321 and 325 elaborated on the catch basin and rock fill. His sketchbooks also illustrate his attention to the north balcony, while the roof is likened to a ski jump noticed while flying over Crete on February 20, 1951 – the "ski jump" effect is apparent in sketches 327-8. Through his initial sketches, Le Corbusier also clarified the cavern-like interior, with its pulpit and deep-set south windows (326), and anticipated the colored "transparencies" of the south windows. These simple sketches belie the mastery of Ronchamp. Franclieu sees them as illustrative of Le Corbusier's creative process; they represent visual cues to his design pretext.[244]

A primary consideration in the design is also Le Corbusier's choice of the situational context, which he believed exploited the daunting views. In what Geoffrey Baker refers to as "the confrontation between movement and the building," Le Corbusier utilized the oblique axis of the site to display the chapel entrance and outdoor assembly area.[245] The downward incline of the roof drags the eye towards the main entrance, where its abrupt intersection with the main tower "creates a dynamic tension at the point of cleavage."[246] Further, by tilting the chapel along its transverse axis, the architect drew movement along a longitudinal line that bisected the hilltop site. Baker refers to this longitudinal aspect as the secondary zone. The concave "acoustical" south face "arrests the observer's viewpoint, directing them to the main entrance, bulwarked by the larger chapel tower."[247] The denseness of the south wall, what Baker calls a "sawtooth" plan, with its painted glass display of spectacular, oddly-shaped glazed windows, conversely anticipates the necessity to separate visitors from the meditative pilgrimage zone defined by the east

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[243] Le Corbusier frequently refrained from sketching his designs until he had worked through the creative problem. Fondation Le Corbusier, Sketchbooks, Vol. 2, 27.

[244] "When I am given a task, I am in the habit of tucking it away in my memory, that is, of not allowing any sketch to be done for several months....then one day, a spontaneous initiative of the inner being takes place, everything falls into place; one takes a pencil, a bit of charcoal, some colored pencils (color is the key to the process) and one gives birth right there on the paper: the idea comes forth, the child comes forth, it has come into the world, it is born." Le Corbusier, Textes et dessins pour Ronchamp (Paris: Forces Vives, 1965) as cited in Fondation Le Corbusier, Sketchbooks, Vol. 2, 27.

[245] Geoffrey H. Baker, Le Corbusier: An Analysis of Form (Berkshire: Van Nostrand Reinhold (U.K.) Co. Ltd., 1984) 191.

[246] Baker 200.

[247] Baker 192-3.

wall.[248] Baker comments that: "The south wall therefore draws in the visitor with its curvature, yet acts as a barrier to be penetrated as a result of the sloping wall." Just as the convex nature of the northern and western walls separates the pilgrimage area from the functional zones, Baker comments that Le Corbusier, seemingly instinctively, creates another bisection between the location of the secondary entrance and the eastern exit by obscuring them by means of the oblique thrust of the south wall.[249]

Of further significance to the siting is a concept Le Corbusier refers to as the "visual acoustics" of the French landscape. Le Corbusier considered the chapel a "land of acoustic sculpture," or an "acoustic plastic work," like the dichotomy of the positive-negative form that ("the outside is always an inside") that both projects into and is projected upon the surfaces around it.[250] Le Corbusier believed acoustic forms were the outcome of the action of a work of architecture or sculpture on its surroundings. By collaborating with Edgar Varese to produce a musical programme intended to be broadcast from a distinct, metal bell tower, thus supplementing the landscape with electronic music, Le Corbusier hoped to acknowledge the weight of sound and events on the design, creating a consequent "concordance" between the site and sculpture – what he expressed as the idea of architecture as a "veritable manifestation of acoustics in plastic form."[251] Le Corbusier explained this phenomenon as follows: "...the work (architecture, statue or painting) acts on its surroundings: waves, cries, or clamour (the Parthenon on the Acropolis) flashing out like radiating rays (....); both in the immediate vicinity and further afield these shake, dominate or caress the site (....)."[252] Although Le Corbusier did not fully achieve his envisioned acoustical program, a free-standing set of bells provides a visibly acoustical element, beyond that expressed by what he refers to as the radiation of the form upon the inexpressible space.[253]

As Le Corbusier exhibited in his Purist works, Ronchamp's design presumed that proportion would transport architecture beyond the physical form to a state of innate sensation: Le Corbusier compared proportion to a key that comprises the unifying force in architectural design. What defines the esthetics of the design is the individual, who ensures the architectural event is immortal; architectural sensations are, thus, the result of the human response to

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[248] Baker 198.
[249] Baker 195.
[250] Pauly, Le Corbusier 112.
[251] Pauly, Le Corbusier 111.
[252] As cited in Pauly, Le Corbusier 111.
[253] Le Corbusier, The Modulor 1 and 2 253.

geometric forms.[254] In this manner, while Ronchamp's proportion, site and the architect's creativity all contributed to the defining experience, it was the individual response that ensures the architecture's endurance. Further, the "concrete or abstract" elements in an architectural composition should be tempered by the architect's intention, since intention determines the architecture's efficacy.[255] This precept assumes validity if one accepts Le Corbusier's statement that architecture is an irrefutable event: "It occurs in certain moments of creation when the mind, preoccupied with the strength and practical convenience of a work, is suddenly uplifted by a higher intention....and sets out to express the lyric powers that animate and delight us....This higher intention defines architecture."[256] The proportions, as consistent with the architect's intention, determine the grandeur of the piece, since the greatness is in the intention, not the dimensions.[257]

A further dominant feature of Ronchamp is the "reverse-curved asymmetrical roof," supported by reinforced concrete columns above masonry walls. Files 32129 and 7293 from the Fondation Le Corbusier show the architect's preliminary sketches for the roof, while sketchbook H32 elaborates on this detail. Frampton comments that the concrete roof shell "cantilevers its heavy form outwards on the southern and eastern elevations and ingeniously contrives to conceal itself behind whitewashed walls to the north and west."[258] While Le Corbusier compared the "inverted shell" roof to the curved canvas Philips Pavilion roof, it has been variously described as a crab's shell by the architect and a ship's hull, a petrified tent or a distorted plane wing by critics; Frampton points to similiarities between the 1939 Liège and San Francisco exhibition pavilions, with their hyperbolic space frames.[259] Le Corbusier insisted the resolution of the roof form was a response to the site: "Thick walls and a crab's shell to give curves to a static plan. I'll provide the crab's shell; we will lay it on the foolishly but usefully thick walls...."[260] Benton interprets the form somewhat more symbolically: "This evocative form was both a structural paradigm – strong enough to carry his weight – and a visual symbol of enclosure."[261] His reference to the roof's structural proportions is consistent with the doctrine of New Brutalism. It is known that Le Corbusier continually searched for new and evolving architectural forms, hence, his transition from austerity to an assemblage of "contrasted" construction

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[254] "Esthetics thus contains a factor that makes a work immortal and ensures that these will always be immortal works. That factor is the individual." Le Corbusier, Une Maison – un Palais as cited in Guiton, Ideas 26.
[255] "You have to select the proper techniques, choose materials, fulfill a program, etc., but the end result of all these efforts hinges solely on the quality of the intention." Le Corbusier, Entretien avec les étudiants des écoles d'architecture as cited in Guiton, Ideas 20.
[256] Le Corbusier, When the Cathedrals were Whjte, as cited in Guiton, Ideas 20.
[257] Le Corbusier, When the Cathedrals were White, as cited in Guiton, Ideas 20.
[258] Frampton 169.
[259] Frampton 172.
[260] Le Corbusier, "Creation Ronchamp," Fondation Le Corbusier file as cited in Pauly, Le Corbusier 72.

materials; Frampton suggests Ronchamp's shell roof and the barrel-vaulted megaron at Cherchell are representative of this research. Conversely, Unité d'Habitation (1947-52), Maison Jaoul (1951-55) and Chandigarh (1950-3) exhibit the architect's transition to Brutalism.[262] Further, Frampton argues that Le Corbusier's break from Purism, with the Mandrot (1930) and Errazuriz (1931) houses, coincided with the abandonment of his faith in the beneficience of a machine-age culture and that his subsequent architecture exposed his sympathies both for Surrealism and for a Mediterranean peasant vernacular, evident in such projects as Ronchamp, but also the Cap Martin house (1949) and Maison Jaoul and Sarabhai House (both 1955).[263] This may also explain the unusualness proportions of the roof form.

The Brutalist conceptualism of the windows in Ronchamp's south wall supports Frampton's argument; although the choice of building material influenced their volume, their placement within the deep-set indentures was made possible by the plasticity of the *béton brut*. The windows serve to relieve the unrelenting reinforced concrete surface, through their varied size and shapes, ranging from inches to feet according to the depth of their enclosure, emitting an irregular pattern of light that defines the interior. The use of tinted glass creates a movable art that traverses the length of the chapel's floors and walls as the qualities of the natural light changes with the time of day, a subdued essence replicated in the clerestory window that encompasses the roofline. In some regard, the south windows are similar to the "periscope" nature of the three towers: "...it is through the medium of light that the interior space is understood."[264]

The interior space must also be understood in terms of Le Corbusier's use of polychromy. Pauly suggests that Le Corbusier considered polychromy to be necessary to the perception of white; by engaging large blocks of color in the windows, Le Corbusier was able to "confer space," creating an additional spatial dimension and, in combination with the light emitted by the windows, defining the project's "architectural locus."[265] Le Corbusier saw "good walls" as white, while murals functioned to create the illusion of space and arrest the isolated, rectilinear surfaces. Thus, the Pop Art contextualism of the colored windows – a hand, a Janus moon and written text that, like the advertising icons he referenced in his paintings, are seemingly reminscent of Léger – and of the other artistic elements of the architecture, such as the enameled south door or the primary colors of the recess that houses the Holy Virgin effigy,

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[261] Benton 248-9.
[262] Frampton 135-6.
[263] Frampton 135.
[264] Baker 198.
[265] Pauly, Le Corbusier 118.

relieve the harsh surface of the sculptural form. The emphasis Le Corbusier placed on polychromy is further evident in the side chapel, where the "bloodied" surfaces and sacristy recede into the forms.[266] Le Corbusier seems to acknowledge this effect by commenting that "in architecture, polychromy...seizes hold of the whole wall and gives it an extra quality, be it the power of blood...."[267] Another explanation for the uniqueness of the graphic imagery is proposed by Jencks, who suggests Le Corbusier chose this vivid polychromy as an expression of his rebellion towards social ideals – the tragic hero juxtaposed against the conservatism of mainstream religion through the inherent conflict between his ideals and societal norms.

While this explanation may have some relevance, it is apparent that Le Corbusier's design was respectful of Roman Catholic tradition. Various elements of Ronchamp are representative of the liturgy: the choice of red (the blood of Christ) for the chapel walls, the symbology of the window graphics (as an example the recognition of the Virgin Mary as a mediator between humans and Christ), the spiritual drama at the close of the pilgrim's journey represented by the design.[268] However, many of the design elements are also personal, such as the reflections of nature by use of images of the clouds, moon and animals or the use of the hand on the enameled door, and the overall presentation is unique to Le Corbusier's innate sense of the rhythm of the proportion and scale of architecture. If the purpose of the architectural programme was merely to create function and adornment, that could have been achieved without the intervention of the artist. It is the appreciation of the *poésis* particular to Le Corbusier that is responsible for the chapel's success as an architectural set piece.

4.3 Theories About Ronchamp

Examining critiques about Ronchamp places the project within the context of experiments in New Brutalism and the rejection of modernism. Some have suggested the project is expressionist or that it is the precursor to post-modernism. Neither explanation is satisfactory, although, like many of Le Corbusier's projects, Ronchamp is both innovative and visionary, preceding in that it precedes similarly bold experiments in church architecture that are

[266] Evoking what Pauly considers to be the Christian concept of sacrifice, but also the imagery of betrayal. Pauly, Le Corbusier 121.
[267] Pauly, Le Corbusier 121.
[268] McKay 87.

situated in the 1960s and 1970s (St. John's Abbey, 1953-61; Manhattan Church of Christ, 1967). Rather, these critiques provide support for the premise that the concept of symbiosis was instrumental to the design.

4.3.1 Criticisms About Ronchamp

Many references have been made to the sculptural quality of Ronchamp; not the least of these by Jordan, who calls the chapel a wonder of three-dimensionality, like some "marvellous piece of abstract sculpture."[269] Elizabeth Darling suggests that, just as Le Corbusier's painting helped him to find a new visual language for his architecture, concrete's raw, visceral quality allowed him to produce the sculptural forms apparent in Ronchamp.[270] Pauly credits Ronchamp with incorporating diverse elements "within (a) sculptural ensemble" – she attributes the integrative nature of Ronchamp to Le Corbusier's research into forms and notes the similarity to the organicism of his post-1920 still life paintings, with their contextual responsiveness to acoustics.[271] Jencks suggests the "antiphonal balance is so exact" that Ronchamp is a rationally perfected sculpture.[272] In contrast to these allusions to the sculptural form, James Stirling, perhaps the most vocal of Ronchamp's critics, refers to the "idioms of popular art and folk architecture" as an explanation for the building's picturesque aspect.[273]

Green finds a correlation between the immediacy of Le Corbusier's late architectural projects, like Ronchamp, and his sculptures, tapestries and enamels, compared to the precision of his paintings. He argues that, as Le Corbusier's artwork advanced, progressing from painting through sculpture and tapestries, his architecture became increasingly art-like and sculptural. He notes: "For Le Corbusier himself, the handling of space was the key to architecture as art: the handling of the space within, and of the building as a response to the space of its setting."[274] Beginning from this reference point, as Le Corbusier's general preoccupations with design aesthetics evolved, along with available technologies, his work became increasingly symbiotic and interior (inner focused). Green contends that Le Corbusier's art and architecture assumed a metaphoric quality during the 1930s, but his architecture became more

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[269] Jordan, Le Corbusier 134.
[270] Darling, Le Corbusier 22.
[271] Pauly, Le Corbusier 127.
[272] Jencks, Tragic 151.
[273] Stirling, "Ronchamp" 67.
[274] Green, "The architect" 110.

"immediate" as it matured.[275] He suggests that Le Corbusier transformed his *objets à réaction poétique* into his Uzon works and that the polychromatic sculptures that evolved from those forms, as re-interpreted through new stimuli, were translated into the "functional sculpture" of Ronchamp: "The late buildings, with their raw concrete and rough finishes, are not simply sculptural, they are also, visibly, huge built sketches, public structures with the impact of private ideas developed in the act of drawing under concentrated pressures, at speed."[276]

Gardiner concurs that Le Corbusier's late 1940s and 1950s paintings explored concepts central to the evolution of his architectural style, including the employment of shapes and lines to create continuous spaces.[277] Gardiner sees Savina's ear sculptures in Ronchamp's light shafts, while the strict dimensions of the Modulor establish the free form shape.[278] If indeed, Le Corbusier "processed" his everyday observations through his paintings and transferred those to sculpture and architecture, Ronchamp is, as Gardiner suggests, no less familiar than Villas La Roche, Stein and Savoye, framed by the site and the echoes of nature as opposed to the omnipresent cube of his earlier works, and wrapped, like a Christo installation, in the rough skin of his plastic material, concrete.[279] In comparing Ronchamp's form to the Villas Stein or Savoye, Gardiner notes that Le Corbusier carried through the exterior into the interior, enabling the whole of the architectural piece to be conceived as a single element.[280] As is the case with Villa Savoye, Ronchamp's form envelopes the viewer: "You are in the sculpture, in the monastic whiteness of the block of stone that he excavated and shaped, the interior of which, a moment ago, you saw from below, in the field....little remains of the cube....inside and outside sculpture are one...."[281] Gardiner considers this aspect – the whiteness of Ronchamp, which he traces to Le Corbusier's travels to the Mediterranean and M'zab in Algeria (1931) – to be a visually aesthetic "bond" with Le Corbusier's Purist style, establishing a unifying element for any combination of shapes, sizes and objects.[282]

Guiton suggests Ronchamp's organicism is a response to the dubious character (porous and calcinated) of the fill and that the form was essential to stabilize the material requirements of the commission.[283] The sculptural quality of the

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[275] Green, "The architect" 117-8.
[276] Green, "The architect" 118.
[277] Gardiner 91.
[278] Gardiner 91.
[279] Gardiner 93.
[280] Gardiner 56.
[281] The Virgin in the window at Ronchamp is a literal translation of this effect, as are the concave windows, of exposing the acute dimension by opening up the design to integrate the inside and outside as one. Gardiner 61.
[282] Gardiner 45.
[283] Guiton 47-8.

design illuminates the essence of the stone from which Ronchamp, like a sculpture, was created, exposing "what shapes and spaces could be revealed by the cutting away of unnecessary bits."[284]

Pauly also references Le Corbusier's extensive studies of Mozabite architecture, in particular, his interest in light transmission and the distribution of window openings in the dense walls of the Algerian forms that, as at Ronchamp, provide a diffused, yet restrained, environment. However, although she acknowledges similarities between what Le Corbusier refers to as the honesty and directness of the white forms of Mozabite and Ronchamp, Pauly argues that any resemblance is referential, rather than direct, consistent with a creative process that is reliant on a search for architectural sources, as was central to Le Corbusier's design process.[285] Pauly's assertion that the conceptual theme is defined at the start of his creative process is important if one accepts the intuitive nature of Ronchamp's design. While Pauly refers to Ronchamp as a total work of art, supporting the integral sculptural context, she suggests the design established "an implicit bond with the past" by incorporating elements from certain Roman churches, such as the sacred atmosphere, the bulk of the volumes and weight of the walls, the splayed windows and diffused lighting.[286]

Jencks sees influences on Ronchamp in Le Corbusier's interest in a "rational, complex approach to art," evidenced by his emphasis on regulating lines, murals and the concept of ineffable space.[287] He suggests Ronchamp's curvilinear forms were rationally determined, plastically inter-related variants of the straight line and right angle.[288] He considers Ronchamp's sculptural qualities to be a response to Le Corbusier's post-war aesthetic – "tough and realistic, towards the poverty of reconstruction" and predominated by an emphasis on the primitive, sensual and aggressive: architecture as "sculpture in a new plastic language."[289] Le Corbusier was able to achieve this effect because the imperfect medium of *béton brut* was uniquely suited to his new aesthetic; like the human landscape: "The defects shout at one from all parts of the structural."[290]

Jencks agrees with those critics who attribute Le Corbusier's experiments in New Brutalism to his folkloric interests, the vernacular forms of which, one might argue, further contribute to the sense that the piece is sculptural. As

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[284] Gardiner 53.
[285] Pauly, Creative Process 132. For the purposes of this thesis, creative process means the process of defining the problem, discovering potentially relevant experiences through research or drawing, engaging in intuitive thinking, illuminating the idea and verifying the resolution through revision or editing. Michael Delahunt, "Creative Process," 1996, ArtLex Art Dictionary, accessed 23 August 2004, <http://wwww.artlex.com>.
[286] Pauly, Creative Process 135.
[287] Jencks, Tragic 149.
[288] Jencks, Tragic 151.
[289] Jencks, Tragic 137.
[290] Jencks, Tragic 142

evidence, he refers to Le Corbusier's statement of 1923: "...the business of Architecture is to establish emotional relationships by means of brutal materials."[291] Jencks argues that by the mid-thirties Le Corbusier had adopted Brutalism as a reaction to "a rediscovery of natural orders, primitive societies and a sexual relation with women unconstrained by conventional etiquette, sophistication or snobbism."[292] Frampton also remarks upon the similarity of Ronchamp to Le Corbusier's 1930s architecture to the essential form of the Pavillon des Temps Nouveaux (1937).[293] One is further reminded of the integration of the de Mandrot House with its site.

Beyond its seeming correspondence with sculptural pieces, one must also consider Ronchamp within the context of Le Corbusier's interest in the relationship of art to nature. While some (Nikolaus Pevsner among them) consider the design to be irrational architecture, Von Moos argues that the chapel is symbolic of the "atavistic mysticism of nature."[294] Green comments that the merger of art and architecture in Le Corbusier's Boston, London, Paris and Lyons exhibitions, and the "sculptural" architecture of the Marseilles Unité, Ronchamp and the Capital of Chandigarh, with its deeply felt "acoustical" responsiveness to splendid natural settings, were the outcome of Le Corbusier's mature understanding of the relationship between himself, nature and design.[295] Pauly suggests that Ronchamp is both a product of the architectural technique available to Le Corbusier and a *pöesis*, "a platform for lyricism" as embodied in the poetic moment.[296] She argues that the "poetic moment" is omnipresent in his work because Le Corbusier considered architecture to be a "matter of plastic emotion" that works on the senses and creates a "consonance" with the universe (nature).[297] In this manner, Ronchamp's form can be seen as a response to the site, in that the four horizons to which the structure is oriented suggested to the architect an acoustic response "in the realm of forms."[298]

The religious symbolism is further significant to an appreciation of the design of Ronchamp and here architectural critics have divergent views. Jordan considers the chapel's religious symbolism to be complex, yet reductivist: Le Corbusier commented that Ronchamp represented, "A few scattered symbols, a few written words telling the praises

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[291] Jencks, Tragic 110.
[292] Jencks, Tragic 110.
[293] Frampton 171-2.
[294] Von Moos 254.
[295] Green, "The architect " 117.
[296] Pauly, Le Corbusier 123.
[297] Le Corbusier as cited in Pauly, Le Corbusier 128.
[298] Le Corbusier as cited in Pauly, Creative Process 128.

of the virgin."[299] Frampton sees Le Corbusier's interest in electronic broadcasts as an allusion to the medieval belfry. The three light cowls, each of which harbors a chapel, represent the Trinity (Father, Son and Holy Ghost); he argues this symbolism is also apparent in the hollow cylinder and two pyramids of the concrete cistern that collects rainwater from the roof.[300] He sees the inside/outside northwest balcony as a symbol for the sun's diurnal passage: "All in all, inside and out, the chapel celebrates the ascent and descent of the sun together with the waxing and waning of the seasons, integrated into the life cycle and the rhythmic order of nature."[301] By shifting between the aquatic origin of life "and the ultimate transformation of this aqueous state into the aerial," Frampton argues that Ronchamp articulates the duality between air and water – as "paralleled in the diurnal cycle of evaporation and condensation" – thematic to Le Corbusier's architecture.[302] He further interprets the form as a "subtle transposition" of the structure and form of the Pavillon des Temps Nouveaux, itself inspired by the Hebrew Temple in the Wilderness illustrated in Towards a New Architecture.[303] Pauly argues that the unstructured forms represent the irrationality of the religious and spiritual realms; Ronchamp acts as an exploratory vessel for the plastic arts within the religious form.[304] She suggests that by questioning traditional chapel design and the concept of the church as a "place of elevation," Ronchamp established itself as a unique manifesto within contemporary religious architecture.[305]

A further explanation for the commission is posited by Benton, who suggests Le Corbusier's search for ideas premised on metaphysical and moral assumptions acted as a "substitute" for religious faith, arguing that his sympathy for religious life and explorations into a personal poetics, through documents such as the "Poème de l'angle droit," "Le modulor" and the "Poème electronique," contributed to a mythology that enabled Le Corbusier to approach religious commissions with an innate appreciation of their complexity.[306] Le Corbusier's involvement with projects such as La Sainte-Baume (1946-8) and his prescient 1911 sketches of the Serapeum at Hadrian's Villa are indicative of a cautious intrigue with questions of spirituality. Benton suggests that Le Corbusier associated ideas about beauty and truth with an "idealist world-view" that was spiritual, yet agnostic, while simultaneously struggling with "the innate, intuitive idea of a supreme Being" that allowed him to combine concepts of the individual with the universal

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[299] Jordan, Le Corbusier 133.
[300] Frampton 171.
[301] Frampton 171.
[302] Frampton 174.
[303] Frampton 172.
[304] Pauly, Le Corbusier 126-7.
[305] Pauly, Le Corbusier 126.
[306] Benton, "The sacred" 240.

in his religious architecture. He suggests Le Corbusier's abstracted vocabulary at Ronchamp is the reflection of his contempt for the events of the Second World War, as evidenced in his disregard for representational painting in favor of his beastiary series of paintings, sculptures and drawings, which included Ozon Opus I (1947). These "new," "unexpected" and "unknown" objects were translated in his architecture at Ronchamp, just as his *objets `a réaction poètique* (shells, bones, pieces of wood) of 1948 were source material for his sacred architecture.

Whether these critics believed that Ronchamp was Le Corbusier's response to the relationship of art to the natural and human domains, or a reaction to his *objets `a réaction poètique*, the argument for symbiosis seems apparent, as the discussion of the architect's intent for the architectural programme supports. The consistent emphasis on the sculptural basis of the design, while refuted by Stirling, is appropriate to the question of symbiosis, since it infers a potential for irrationality. If, as Green suggests, Ronchamp is akin to Le Corbusier's sculptures and paintings, therefore, it might be argued that, in its innate apprehension of the spiritual function of the architecture, Ronchamp replicates the inner focused striving to achieve comprehension through the expressive means specific to a work of art. To carry Green's analogy further, Ronchamp is the sculpture, while the elements of the piece – among them the windows, enameled door, altar pieces and polychromy – are essential to its comprehension as a place of meditation and spirituality, similar to the sanctity of the darkness of the cave. This differs significantly from the concept of synthesis, in which each part of the work comprises the whole, but in which none of the parts are necessarily essential. In this manner, then, the clerestory windows can be understood as central to the experience of spiritual meditation, since they remove the parishioner from the everyday environment, emitting only that light essential for spiritual illumination, symbolizing perhaps the passage from the darkness of the questioning and non-comprehending mind to the light of spiritual awareness, represented by the south windows, which function as an allusion to the four seasons and to the redemptive quality of the light as it passes through the diurnal cycle. Thus, like the pilgrim, as the light of Ronchamp traverses its diurnal cycle, the parishioner travels along a path from the redemption-seeking spirit to the cleansed soul. It might, then, also be argued that the themes of light and darkness represent the duality of righteousness versus the confused state of sin, alluding to the Chrisitian concept whereby the experience of sin informs that which is good. Further, the symbology of the art pieces, from the open hand which infers the Christian concept of giving and receiving, to the Janus moon that functions as a gateway, perhaps to spiritual enlightenment, growth and renewal as the conclusion of the pilgrim's journay, transcend synthesis because they are essential to the architect's ability to respond to the functional requirements of the commission, rather than a representation of creativity or adornment. In the achievement of symbiosis, Le Corbusier contributes to 20th century design syntax the

appreciation that architecture is a function of emotion. This distinguishes symbiosis from the concept of synthesis, wherein the art is a constituent of the architecture, but not primary to it.

4.3.2 Importance of the Design to Ideas About the Symbiosis of Art and Architecture

Le Corbusier has frequently credited painting as the source of his architectural inspiration and, hence, the emphasis in this thesis on looking back to his art training, involvement in Purism and his sketchbooks as definitive moments in the development of painting, sculpture and murals as elements in Le Corbusier's design vocabulary.[307] These explorations position the experimentation evident at Ronchamp; although Le Corbusier could have chosen a more traditional approach to the chapel's design, his is strikingly innovative in the appreciation of art as integral to the architecture, in contrast to art as applied decoration.

An examination of the architect's statements within the context of this paper reveals that besides his preoccupation with standardization, dimension and geometry – the tools of building design – a consistent theme for Le Corbusier was the interdependency of art and architecture. To appreciate this, we might look to Alfred H. Barr, who proposed that 20th century architecture was influenced by painting and sculpture in reaction to the "feeble academic mimicry" of the revivalists and the nihilism of the functionalists; Le Corbusier was familiar with or involved in many of the major art movements – Cubism, Purism, de Stijl, constructivism – and advocated for the rejection of academic art in favor of a non-mimetic art.[308] Le Corbusier was privileged to work with Behrens and Perret, who advanced the use of ferro-concrete, which became Le Corbusier's canvas. He is also acknowledged as one of the new group of post-WW I architects (Gropius, Oud, van der Rohe and Le Corbusier) who valued the work of abstract artists. Henry-Russell Hitchcock argues that Le Corbusier's adoption of an aesthetic appropriate to the machine age and "the smooth, flat, rendered surfaces" of his 1920s architecture (such as the Ozenfant studio and Villa Savoye) are evidence that Le Corbusier moved beyond the building system to an architectural style that valued the inclusion of the art element.[309] This comment, by extension, remains pertinent to his post-Purist works.

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[307] Le Corbusier, My Work 37. Art, as referenced in the case study, refers to manmade products involving manual facility.
[308] Henry-Russell Hitchcock, Painting Toward Architecture (New York: Duell, Sloan and Pearce, 1948) 9.
[309] "...his houses were visually organized with all the perfection of his purist paintings." Hitchcock, Painting 26, 28.

The informalism of Le Corbusier's late architecture appears to have been intended to achieve a fusion between art and architecture. There is evidence that he strove to surpass the metaphoric character his artwork assumed during the 1930s – with the inclusion of *objets à réaction poétique* and his experimentation with the translation of his drawings and paintings into polychromatic sculptures – to new forms, as apparent at Ronchamp.[310] Le Corbusier's clay maquettes for Ronchamp evolved around the same time that Joseph Savina was modelling the architect's drawings into sculptures, while the chapel's development also coincided with Le Corbusier's 1953 Paris exhibition, one of four exhibitions between 1948 and 1956 in which he endeavored to demonstrate the synthesis between art and architecture. His concern with symbiosis is evident not only in the use of art as application (such as on the windows on the south wall), but in the architect's use of reinforced concrete to reveal the plastic event.

The fluid quality of *béton brut* enabled Le Corbusier to explore the sculptural context, what Jordan calls an evolution from the cube to the crystal, just as Gaudi's designs appear to be shaped by hand from clay. Le Corbusier himself remarked on this in The Modulor: "The chapel at Ronchamp will perhaps show, when it is finished in the spring of 1955, that architecture is not a matter of pillars but of plastic events. These are not ruled by scholarly or academic formulae: they are free and innumerable."[311] Hence, like many of his buildings of the 1950s, Ronchamp has few straight lines: the downward curving ceiling creates an illusion of size, while the roof itself rises six inches above the walls on concrete pillars hidden in the onerous south wall, 10 feet thick at points. Le Corbusier leaves visual cues in Ronchamp that remind the viewer of Villa Savoye, but also of his evolution from the machine-like precision of his paintings of the early 1920s to, as Frampton has remarked upon, the "voluptuous" lines of the female form in his later sketchbooks.[312]

Von Moos comments on some of the motifs evident at Ronchamp. Of particular interest are the sharply articulated stairwell or ramp and curved walls, which von Moos refers to as sculptural articulations that "accompany, paraphrase, and contradict the rectilinear geometry (of Le Corbusier's characteristic rectangles and cubes), charging them with tension." Further, Le Corbusier's appreciation of the window as a vehicle for light, rather than air transmission (in Ronchamp windows are used as what von Moos terms an "instrument of sculptural dramatization") is also noted, as is the employment of a female architecture of undulating surfaces. The "dramatization of the roof as

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[310] "...that, before anything else, his buildings should be accepted or rejected as works of art." Green, "The architect" 118.

[311] Le Corbusier, The Modulor 1 and 2 252.

[312] "His drawings were like research notes of ideas perceived in the world about him, records for the 'store house' of particular observation that would someday lead to something of importance." Gardiner 64-5.

an autonomous form," by the establishment of a tension between the interior and exterior through narrow clerestory windows situated between the roof and walls, is also remarked upon.[313] Von Moos notes that Le Corbusier recreates the clerestory effect of the Serapeum he visited in 1911 by employing periscope-like light shafts to illuminate the side chapels, a device that enabled him to recapture the effect of light upon the walls of a cavern and to "compose" with light.[314]

Ronchamp is a traditional form in terms of design standards. Configured according to the dimensions of the Modulor, the design is influenced by the choice of building materials. It adopts many of the characteristics of typical church architecture, such as the multi-height nave, reminiscent of cathedrals (acknowledging that the sense of height is also a deliberate effort to make the exterior appear larger than the very small interior) and the concept of diffused light borrowed from Baroque churches, both in the nave by use of the clerestory window and in the chapels by way of the periscope-like towers. The water-spout is adaptive to the site requirements, as one might expect, and the siting and size of the church are logical to the footprint of the landscape. Although Ronchamp contradicts Le Corbusier's search for universal absolutes – unlike Villa Savoye, which he suggested could be re-created anywhere in the world, Ronchamp is site specific – the design solution is appropriate to the commission requirements. Le Corbusier is known to have researched aspects of Roman Catholic ritual in developing the chapel.

What evidence exists then that Ronchamp represents the symbiosis of art and architecture? In arguing that Ronchamp represents a symbiosis, as opposed to a synthesis of art and architecture, the argument is made that the art is not merely applied decoration nor that any effort is particularly made at Ronchamp to bring together elements of fine art for the purpose of achieving synthesis. Rather, it is argued that the architecture of Ronchamp is the art and that the art is integral to the architecture in that it enables the architect to achieve the requirements of the commission for a modernist piece of art/architecture. Thus, the art on the windows or the ceramics on the south entrance are not merely adjuncts to the architecture, but support the function of the architecture in providing a meditative, religious space. The siting of the project upon the landscape is as conducive to the artistry of Ronchamp as the treatment of the *béton brut* is in its adaptation as a sculptural device that corresponds to the listening and reflective qualities of the chapel's intent. This distinction appropriates symbiosis as the mutual interdependence of the elements in enabling the architect to achieve the purpose of the commission, as opposed to synthesis as the bringing together of

[313] Von Moos 86, 98.
[314] Von Moos 98.

individual elements to form a whole, any element of which could be eliminated without disturbing the completeness of the composition.

As evidence, we have Le Corbusier's writings, in which he makes reference to the importance of his own art to his architectural process, as well as that of various critics and commentators, who advance the premise that Le Corbusier's intent was to create a "temple" for the synthesis of art and architecture. These interpretations, while sympathetic to his writings and approximating the premise for pieces such as Ronchamp, fail to account for the essentialism of his art to his later architecture. Secondly, we see the evolution of Le Corbusier's architecture, in tandem with his art, from the tentative Swiss villas of his youth, decorated with motifs from nature, to the Purist boxes that exhibit the initial evidence of architecture as a work of modern art – Pavillon de l'Esprit Nouveau (1925), the Ozenfant house and studio (1922), Villa Savoye (1928-9), the Villa Stein and House at Weissenhof (both 1927) – followed by projects such as Unité d'Habitation, Marseilles (1946-52), which incorporate art directly into the design. Although these developments responded to the unique nature of his clients' design preferences and their architecture is more representative of the application of art to architecture than of the integration of art with architecture, they exhibit the intent that architecture is more than a functional box. We further see his involvement with Greek musician-architect Iannis Xenakis, between 1947 and 1957, who encouraged Le Corbusier to couple visual art with music, culminating in the Philips Pavilion (1958) at the Brussels World Exhibition, with its electronic score by Varese and "kinetic" light and art display, which some argue more completely achieved his vision of a total work of art.[315] This project builds upon the concept of symbiosis in that it incorporates art as the pretext for the architecture. Further, although this project post-dates Ronchamp, it is indicative of the environment in which Ronchamp was incubated. It is apparent, from his sketchbooks and drawings, that the initial design for Ronchamp was intuitive, which suggests that Le Corbusier adopted the form, then adapted it to the site requirements. Although Le Corbusier might have chosen to apply the art at Ronchamp as decoration – assuming that the architecture was primary – the design, arguably, assumes a sense of mutual interdependence, or symbiosis, in which each artistic and architectural element is reliant on the other in order to support the whole. This is apparent in the manner in which the concave wall supports the shell-like roof, which enables the integration of concepts about *objets à réaction poétique*, while the imagery of the south window wall integrates religious motifs with those on the platform dias. Looking at

[315] There are other obvious similarities between the two projects: Frampton points out Le Corbusier employed variations of the double curvature – whether through catenary suspension in the Pavillon des Temps Nouveaux or the hyperbolic space frames of his exhibition pavilions – he used this concept at Ronchamp, just as he copied Ronchamp's pivoting entry door from his Pavillon des Temps Nouveaux. Frampton 182.

Ronchamp, then, it would be difficult to conclude that the final product is appropriate to the traditional requirements of a religious commission; rather, it was the support of the Dominican order in providing Le Corbusier with the freedom to design at will and Le Corbusier's appreciation of the integral nature of art and architecture that appears to be responsible for the achievement of this symbiotic piece.

4.4 Relevance of the Case Study to the Research Question

The suggestion that the basis for the development of an architectural form is painting or art may imply that the techonology or functional programme are secondary concerns. A more appropriate conclusion in the case of an architectural work such as Ronchamp is that the technology and programme supported the integration of the architecture as art and that the artwork, in this context, was dependent on the form for its interpretative value. In order for Ronchamp to succeed within its architectural programme, it was necessary for Le Corbusier to apprehend the interdependencies of the site, technology and artistic programme, however, it is specific to his genius that he achieved, in the process, a symbiotic resolution to the design problem.

Although Le Corbusier entertained a general preoccupation with design aesthetics, as evidenced in his substantive writings, at Ronchamp the viewer sees Le Corbusier's design work as an evolution of both the architect's understanding of the plastic fact and of the concepts he first expressed in Towards a New Architecture. While the opportunity to create his own Parthenon, one free of constraints, enabled him to recover some of his wounded pride over the failure of Saint-Baume, it conversely gave expression to Le Corbusier's beliefs about the integral nature of the symbiotic relationship between art and architecture.[316]

[316] Gardiner suggests Ronchamp is, itself, cavernous, recalling Sainte-Baume and Le Thoronet on the crown of a hill. Gardiner 87.

CHAPTER V

CONCLUSION

To be symbiotic is to have a relationship of dependency. To suggest art and architecture are symbiotic seems obvious, yet the instances of its deliberateness are isolated. Le Corbusier was one of the most prolific of the artist-architects to emerge in the early 20th Century; Gropius and Wright also come to mind. Irrespective of this, Le Corbusier's artistic production is not particularly well known and exhibitions of his work have been infrequent. Le Corbusier was not acknowledged to be a great painter; unlike Léger or Picasso, he was not immediately adept at art-making. Significantly, it is his involvement with art-making that both distinguishes him from his contemporaries and establishes the accomplished architectural surfaces for which he is known. It seems capricious to argue Unité d'Habitation at Marseilles, the Corbusier Centre and Ronchamp aren't the outcome of his experiments in art-making or to point to the Philips Pavilion without acknowledging his interest in multimedia. Consistent with his individualism, Le Corbusier intuited much of the motivations for his own work for us, albeit with some lack of clarity or perhaps distortion of the events and people involved. Nevertheless, his many works are ambitious and Ronchamp reveals the relationship of the sculptor to his form.

Modernists believed architecture could create a new order between humans and form. Their architecture evolved from this comprehension that design could reflect the excitement of the moment of possibility. Le Corbusier stood on the edge of the International Style; like Gropius, he was an innovator. Le Corbusier, who approached architecture from the viewpoint of artist, seized upon the innovations of the early 20th century as his manifesto. L'Esprit Nouveau and Towards a New Architecture integrated the new architecture with painting, sculpture, music, literature and the social sciences; Pawley suggests Le Corbusier's architectural themes are to be found in the pages of these influential publications.[317] His design style evolved as he matured but, unlike some, his was an abrupt series of departures, from his stark Purist buildings to the integrative surfaces of the Philips Pavilion and Ronchamp. Several

[317] "Many of Le Corbusier's later projects, particularly his houses, are to be seen clearly in the illustrations of promenade decks on liners, 'cubist' automobiles and biplane aircraft which crowd its pages." Martin Pawley, Le Corbusier (London: Thames and Hudson, 1970) 10.

themes are emergent in his life's work: the decoration of the Swiss Villas and his interior designs give way to the cubic forms of his Pessac project and the organicism of Ronchamp.[318]

There is little doubt Ronchamp is Le Corbusier's premiere integrative work of art. The architect himself comments about the symbiosis of architecture with art at Ronchamp: "Architecture is form, volumes, color, acoustics, music."[319] Ronchamp is all of these; like the Philips Pavilion it is experimental, like many of Le Corbusier's works, timeless. Pauly notes that, with Ronchamp, Le Corbusier was able to "draw forth from a constructed work (architecture) presences engendering emotion, which are essential to the poetic phenomenon."[320] Le Corbusier expresses this sentiment in his own writings: "The architect, by his arrangements of forms, realizes an order which is a pure creation of his spirit;by forms and shapes, he affects our senses to an acute degree, and provokes plastic emotions...he determines the various movements of our heart and of our understanding; it is then that we experience the sense of beauty."[321]

Although Ronchamp is removed from the mechanical objectivism that dominated the experiences of architects and artists in the early 20th century, Le Corbusier's appreciation of the design is formulated on a grounding in mechanical selection. Arguably, Le Corbusier makes the shift from the rigid geometricism of Purism to the organicism of Ronchamp as a consequence of his new appreciation of the relationship of nature to humans, through his involvement in CIAM and as a consequence of his disillusionment with machine architecture. Although his interest in natural systems contributes to this ability to relate the order of things to design, as is evidenced in his interest in the structural dynamics of the crystal, Le Corbusier is able to incorporate art-making into Ronchamp only because he evolves as an artist who suppresses the functionalism of his architecture to enable the manipulation of the light, shade, contour and profile. Le Corbusier's sketchbooks are evidence that the architect was not a particularly gifted artist, but that he was able to achieve a symbiotic relationship between his art and architecture. In his sketchbooks, we see the compendium Le Corbusier drew upon to model his chapel: his urban planning manifestos, intrigue with

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[318] Blake suggests Ronchamp's curved masses represented a mystery "as reminiscent of the catacombs or the massive stone monasteries of the middle ages as it was of some dimly understood spatial concepts of today and tomorrow." Blake as cited in Pawley, Le Corbusier 18.
[319] Le Corbusier as cited in Pauly, Le Corbusier 108.
[320] Pauly advances the concept of a total work of art. Le Corbusier suggests the poetic phenomenon derives from "the combined presence of architecture, painting and sculpture, inextricably linked by harmony, discipline and intensity." Pauly, Le Corbusier 109.
[321] Le Corbusier as cited in Pauly, Le Corbusier 110.

the feminine, concern with primitive cultures and involvement in mural making and sculpture. These concerns are given form in his drawings, paintings and notations, but more particularly in his writings and in his final works.

Le Corbusier comments on Ronchamp, suggesting that forms "make a noise and are silent; some speaking, others listening...."[322] As noted, Ronchamp is the culmination of his research into forms, his involvement with art-making through his Purist period to the sculptures and murals of his later years, his understanding of the relationship of humans and nature to art; and his association with other designers through CIAM, and like Léger. The design evolved because the architect was freed from the restrictions of the commission to exhibit his own hand with the design, although not without some opposition. It is the triumph to reconcile the disappointment of the United Nations building – the rare architectural project that arrests the site and seizes the beauty of the form, formalizing Le Corbusier's intention to explicate art and architecture in a symbiotic manner that acknowledges the mutual advantage of their association.

[322] Le Corbusier, My Work 166.

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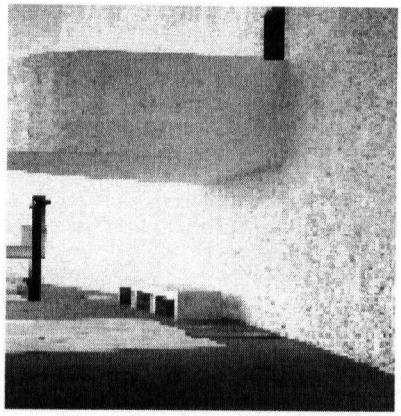


Figure 1: Pilgrimage chapel, west wall

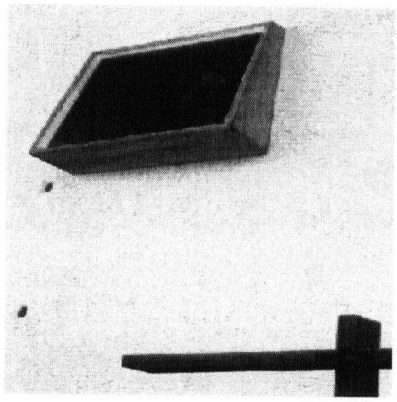


Figure 2: Madonna, west wall

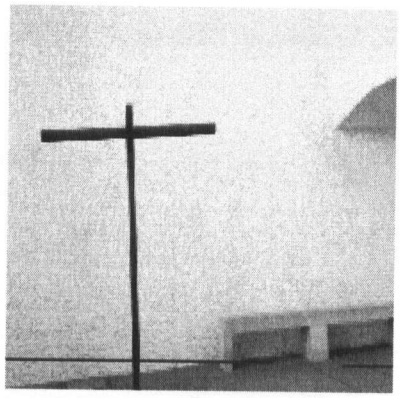


Figure 3: Pilgrimage chapel, west wall

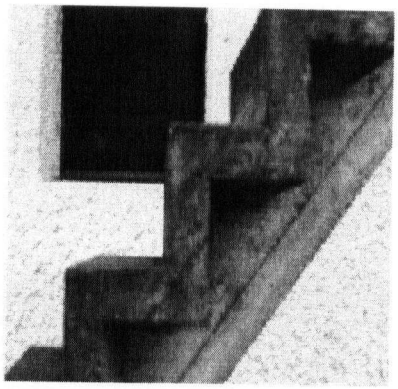
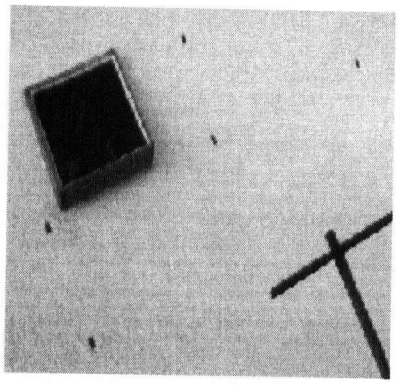


Figure 4: Second-storey exit, north wall



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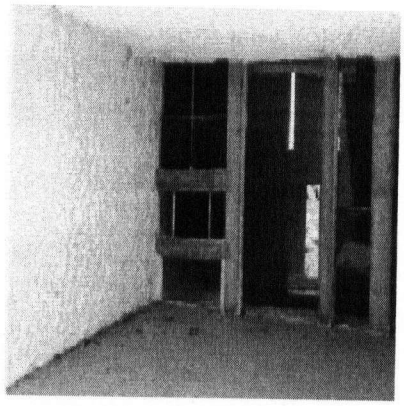


Figure 6: North entrance

Figure 7: Second-storey exit, north wall

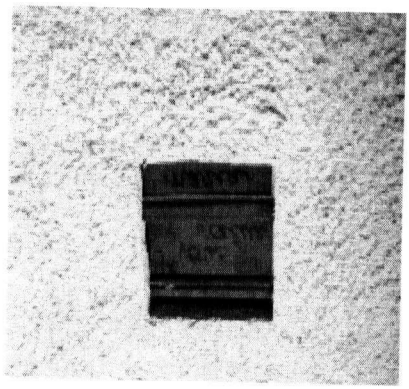
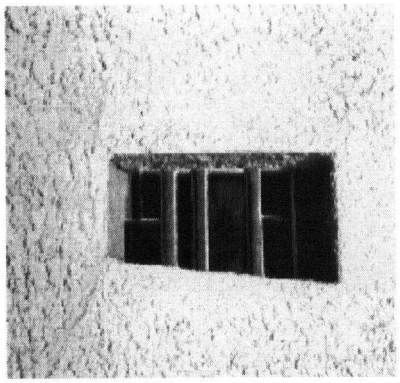


Figure 8: Aperture, south wall



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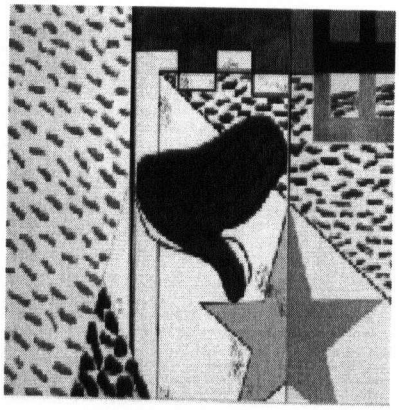
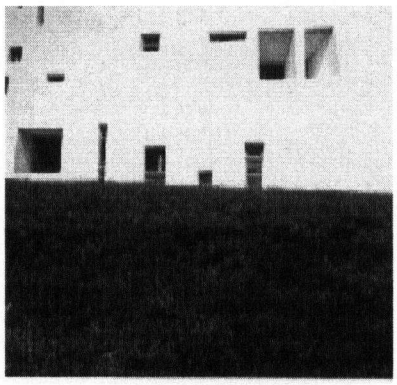


Figure 10: South entrance mural (detail)



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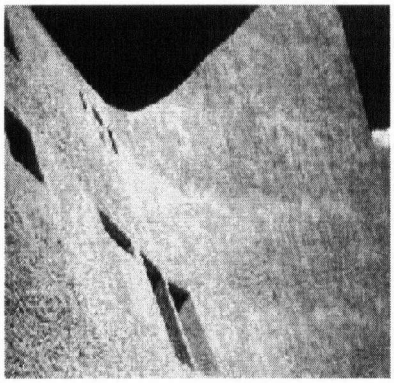

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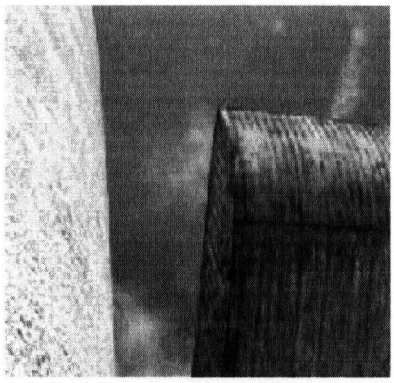
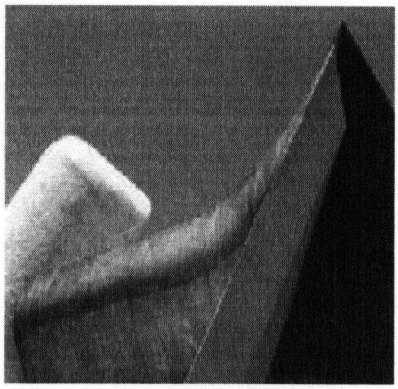


Figure 13: Roofscape, south wall



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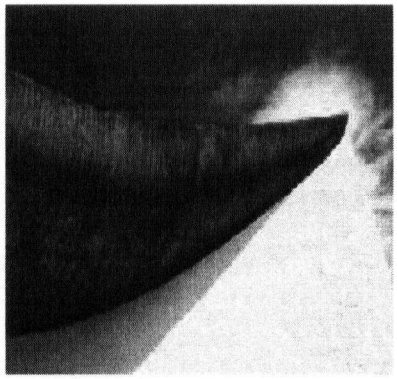

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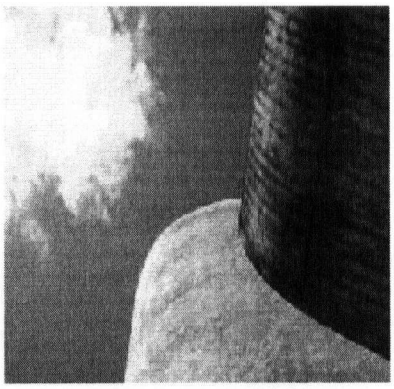

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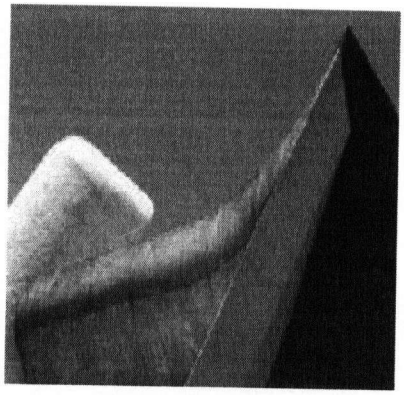

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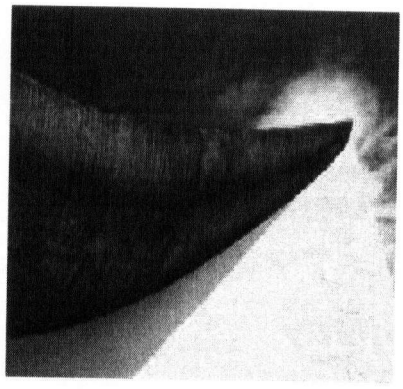

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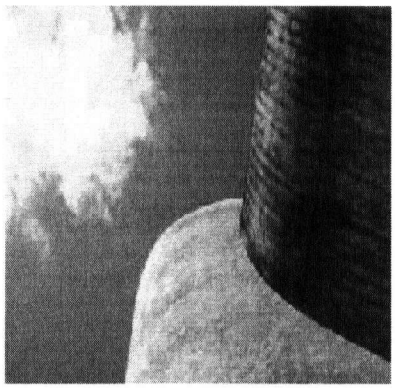

Figure 16: Roofscape, south wall

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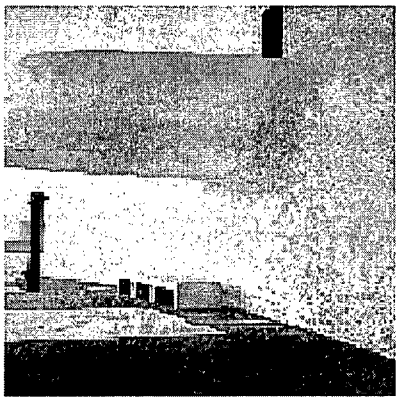

Figure 1: Pilgrimage chapel, west wall

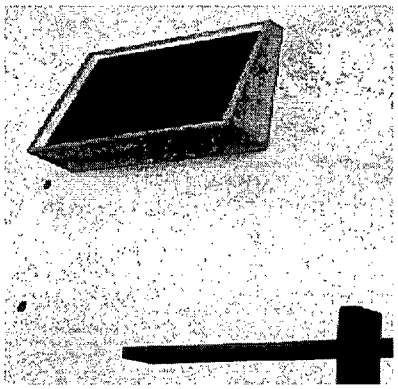

Figure 2: Madonna, west wall

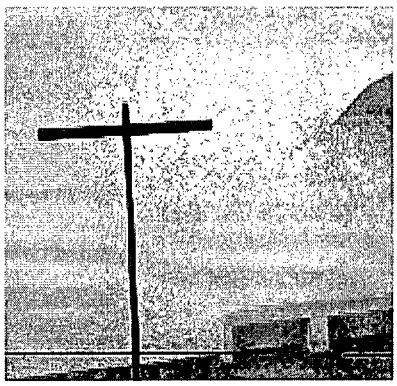

Figure 3: Pilgrimage chapel, west wall

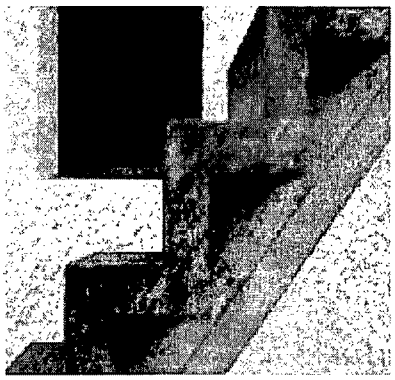

Figure 4: Second-storey exit, north wall

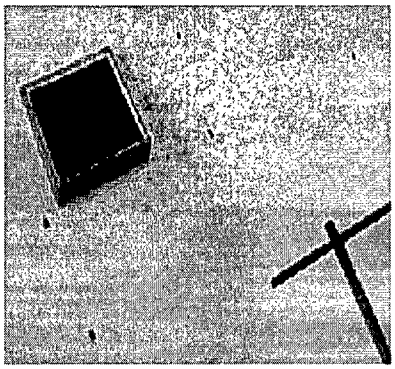

Figure 5: Madonna, west wall

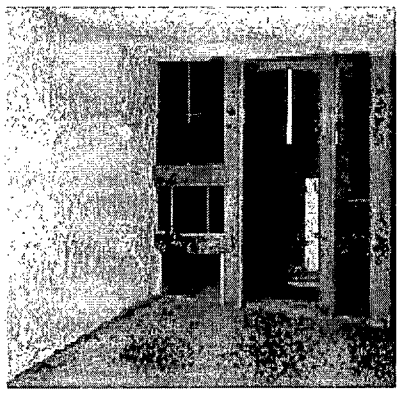

Figure 6: North entrance

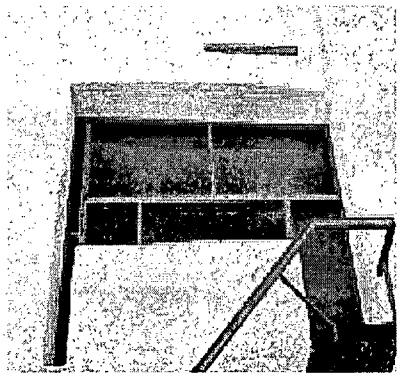

Figure 7: Second-storey exit, north wall

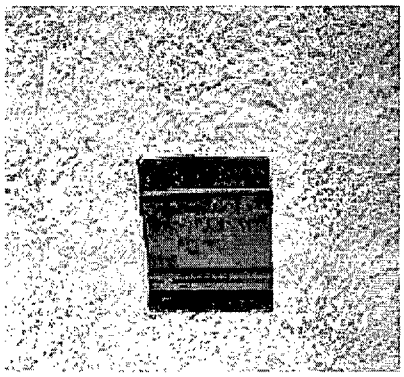

Figure 8: Aperture, south wall

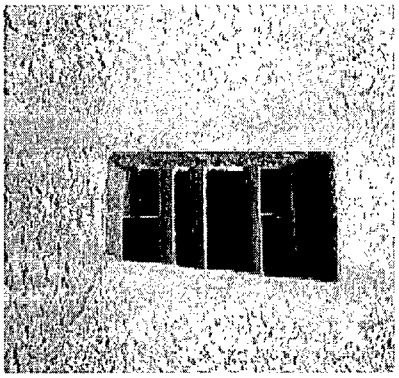

Figure 9: Aperture, south wall

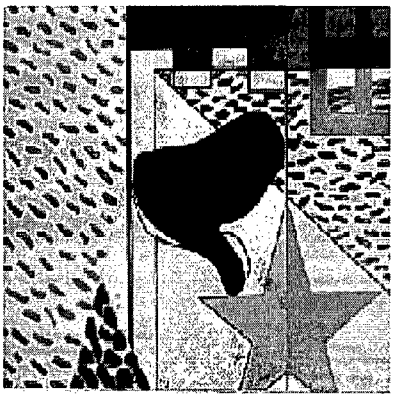

Figure 10: South entrance mural (detail)

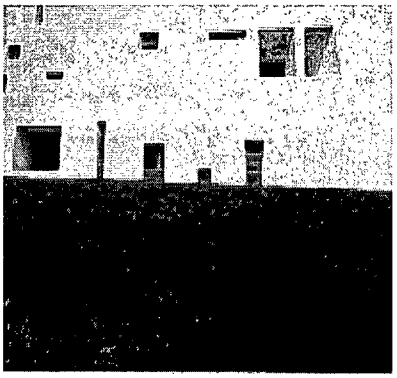

Figure 11: Apertures, south wall

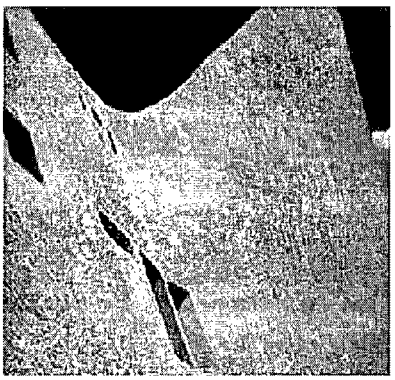

Figure 12: Apertures, south wall

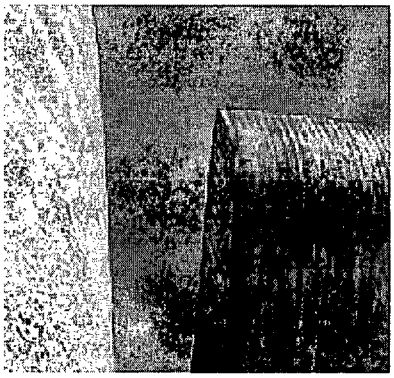

Figure 13: Roofscape, south wall

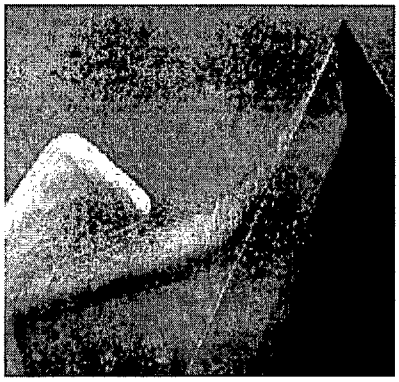

Figure 14: Roofscape, south wall

Figure 15: Roofscape, south wall

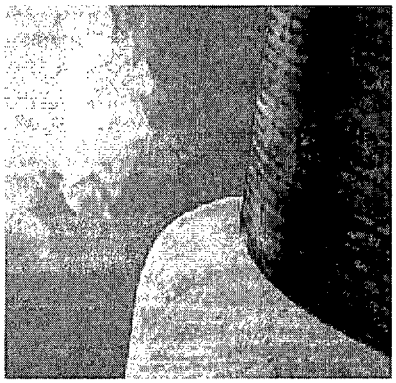

Figure 16: Roofscape, south wall