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Alfred Stieglitz and science, 1880–1910

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Case Western Reserve University, 1990

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ALFRED STIEGLITZ AND SCIENCE, 1880-1910

by

GERALDINE WOJNO KIEFER

Submitted in partial fulfillment of the requirements for the Degree of Doctor of Philosophy

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January 1990
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ALFRED STIEGLITZ AND SCIENCE, 1880-1910

Abstract

by

Geraldine Wojno Kiefer

Alfred Stieglitz's interests and his activities, both creative and catalytic, in the field of early twentieth century American art have already been documented and analyzed, but his equally important status as a photographic chemist and philosopher of science has not yet been given its due.

Stieglitz's formative years, c. 1880-1900, straddled a period of intense discovery and theoretical formulation in the sciences. A student of chemist August Wilhelm von Hofmann and physiologists Emil du Bois-Reymond and Hermann von Helmholtz in Berlin, during this period Stieglitz was also an independent reader in the physical, physiological, and biological sciences. His grasp of empiricist perceptual theory and empirio-criticism (a late nineteenth century philosophy, associated with the physicist Ernst Mach, that criticized the narrowness of empiricism when not integrated into original structures of thought) reveals that he was not a dilettante but was cognizant of key developments and figures in the history and philosophy of science.
Stieglitz's drive to excel as both a laboratory technician and proponent of *Wissenschaftideologie*, an ethical ideal of research fostered by German academic scientists, shows that his was a philosophy of impassioned research and discovery. His well-known intense preoccupation with his own internal drives and with sensation in general takes on new significance in light of experimental ideas that were "in the air" and known to his scientific colleagues, particularly late nineteenth century progressive and experimental psychologists.

Stieglitz formed a part of this avant-garde movement, verifying his own conclusions in the Little Galleries of the Photo-Secession--his "experiment station" also called "291"--as well as in his own photographs from c. 1890 to 1910. It is from this scientific rather than strictly aesthetic vantage point that Stieglitz's early career will be chronologically and thematically assessed.

Although esoteric and speculative concerns are treated in this study, its intent is to clarify an issue in turn-of-the-century thought, not to muddy it. Such a multi-disciplinary approach is appropriate for scholarship related to this period in American art and criticism, justifiable because of the artistic, scientific, and philosophical bent of some of its greatest minds, including Alfred Stieglitz.
This science-based study of Alfred Stieglitz and the Stieglitz milieu grew out of projects begun under the auspices of the Case Western Reserve University/Cleveland Museum of Art Joint Program in Art History. The first was a paper written for a course "The Art of the American Avant-Garde, 1900-1925," offered in the department of art history of the university by Dr. Ellen G. Landau. The second was an independent research project undertaken in my capacity as Cleveland Museum of Art Fellow with Edward B. Henning, research curator of the museum, who was preparing an exhibition, "Creativity in Art and Science, 1860-1980." This was held in the fall of 1987 in conjunction with a citywide celebration of the centennial of the Michelson-Morley experiment on the nature and velocity of light.

Realizing that the turn of the century was a revolutionary period in the history and philosophy of science, and having investigated similarly revolutionary ideas in art and criticism through my course paper on Camera Work (one of the key art journals of this time), I came to believe that the issues raised in each of these projects could be combined into a focus on Alfred Stieglitz. With so much preliminary background in the areas of both art and science, I felt I could approach this
topic from a previously unexplored but philosophically valid perspective.

During the course of research and preparation, I determined that the best point of view was not a multi-focused perspective treating Stieglitz and his critical circle as equal contributors to a scientifically based modernism. Rather I decided to center my study on Stieglitz himself. Whereas his colleagues were well-read and well-traveled individuals, aware of major intellectual currents and willing to experiment with them in their assessments of photography and painting, none of the other members of the Stieglitz inner circle were scientists \textit{per se}. Stieglitz, on the other hand, studied engineering and photochemistry in Germany, and was exposed to avant-garde scientific philosophies within the German scientific community. It soon became apparent that it was only because these philosophies came to be revealed in the thought, activities, and art of Alfred Stieglitz that they also appeared in his milieu as the products of his unceasing struggle to elevate and broaden the meaning of art.

That some influences occurred in the opposite direction--from the Stieglitz circle critics back to Stieglitz--is also undeniable; in a "low period" (c. 1897-1904) when science and experimentation had temporarily ceased to be his chief concern, others helped to
reorient him back toward the experimental life. Thus, the ribbon that I found and have traced follows a trail with several offshoots, but all of them eventually return to science. This trail has not so far been well-trodden and in places I have had to clear it from virtually virgin forest.

At several stages of this dissertation, I found that I myself could not see the forest for the trees. I would like to acknowledge the help of my professors who led me back to the right track. My first thanks go to my advisor Ellen Landau. Through the creativity and thoroughness of her teaching and her extensive bibliographic recommendations, she first provided the modernist background for my explorations. She recommended the direction of this study and has followed it every step of the way, taking time to suggest improvements in style as well as content. I am especially grateful to Alan Rocke, Case Western Reserve historian of nineteenth century science and philosophy, who directed me to key secondary sources in the scientific field, immeasurably broadening my knowledge not only of scientific pioneers, but also of the issues they were initiating and exploring. Thanks are also due to Bruce Robertson of the Joint Program in Art History and to William Marling of the Department of English; along with Ellen Landau and Alan Rocke they have constituted the other two members of my committee.
Because of their astute reading and suggestions for improvement of earlier drafts, I was able to write the final dissertation more insightfully and in a more targeted fashion than I could have done otherwise. Also, Edward Henning is to be thanked for sharing his visions for the Cleveland Museum exhibition; in its initial stages these were flexible enough to permit me to research ideas in as many fields as I deemed pertinent to late nineteenth and early twentieth century European and modern art. Excellent teachers and supporters, Harvey Buchanan and Jenifer Neils of the CWRU Department of Art History offered their encouragement as I proposed, then refined the goals of this project.

I wish as well to express my gratitude to Rodrigo de Zayas of Seville, Spain, who opened his library to me so that I could research the writings and ideas of his father, one of Stieglitz's critics Marius de Zayas. Rodrigo de Zayas gave of his time freely for an extended interview, and granted unconditional permission to publish photographs made and obtained from his collection. As I pursued my inquiries in the direction of Alfred Stieglitz’s scientific education and influences, Stieglitz scholars William I. Homer, S. Davidson Lowe and Sarah Greenough provided valuable leads and insights and Mrs. Herbert J. Seligmann, her reminiscences.

Sarah Greenough also facilitated my examination of
Stieglitz's published writings, compiled as the Appendix to her M. A. thesis. Many of the articles cited in the present study might not have been consulted had this extensive documentary work not been made available to me.

I wish to thank Dr. W. Schultze of the Humboldt University of Berlin (DDR) for researching Alfred Stieglitz's student records, Joan Schiu of the chemistry department at the University of Chicago for providing biographical and bibliographical data on Julius Stieglitz, the noted chemist and Alfred's younger brother, and Dr. George Shackelford of the Museum of Fine Arts of Houston, for recommending texts on Naturalism.

The staff of Butler Library at Columbia University and the Beinecke Rare Book and Manuscript Library of Yale University graciously accommodated my requests for photocopies and photographs. The Interlibrary Loan department of Case Western Reserve University Libraries processed numerous requests for research materials, and the staffs of both Freiberger and Sears libraries processed my continuing requests for semester loans. To the art library at the Cleveland Museum of Art I also express gratitude, for allowing me to maintain my table and shelf over an extended period of time. Within the art department itself, Debby Tenenbaum is to be thanked for her readiness in photocopying and distributing materials to the various members of my committee, and for keeping the
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No written expression of gratitude would be sufficient to acknowledge the contributions of those who are nearest and dearest to me. First, without the financial and moral support of my parents, Virginia Wojno and Walter Wojno, I could not have even undertaken, much less completed this dissertation. They knew I had this goal for many years, and they encouraged me to realize it. To my husband Bruce I am equally thankful, not just for the photographs taken in the de Zayas library and for the prints included in this dissertation, but also—primarily—for his devotion and tireless understanding. Furthermore, without his extensive research on the mechanics of computer and printer hardware and software, my work would have been immeasurably more difficult. To my children, Walter and Virginia Kiefer, I offer my love. I hope that this period has been one of family closeness, despite my occasional "geographic" distance.
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CHAPTER ONE
INTRODUCTION: STIEGLITZ AND SCIENCE IN HISTORICAL PERSPECTIVE

Premise, Analogies, and Themes

Alfred Stieglitz (1864-1946, Fig. 1) has often been considered a key impresario of modern art in America. An important spokesman for and practitioner of pictorial photography, he has also been variously called a visionary, an idealist, an intellectual, and an anti-intellectual organicist. His life, photographic oeuvre, and sponsorship of others' creative endeavors have been discussed at length, in articles and books published from 1887 to the present. His career as an editor, first of American Amateur Photographer, then Camera Notes, and finally Camera Work--his magnum opus--has however had less scholarly coverage, although evaluations of critics whose articles he published in these journals have been incorporated into more inclusive books and dissertations. Finally, Stieglitz's own extensive photographic writings--over two hundred articles by him were published from 1887 to 1911--have been recently compiled by Sarah Greenough, but other scholars have not studied them in any concerted depth.¹

The most historically focused works on Stieglitz, a 1975 dissertation by Ann Uhry Abrams and The Lyrical
Left, a 1986 text by Edward Abrahams, attempt to site him within a matrix of American radicalism and social awareness.\(^2\) Other authors whose premises have been primarily literary have discussed Stieglitz as an analogy to or critic and spokesman for novelists and poets who wrote in the 1920s, such as Sherwood Anderson, Waldo Frank, Paul Rosenfeld and William Carlos Williams.\(^3\) Some writers, more concerned with unraveling the Stieglitz mystique, have concentrated upon biography and photographic aesthetics.\(^4\)

However, no one has thus far attempted to correlate either Stieglitz's technical background--his training first as an engineer, then as a darkroom chemist--or his German scientific education with mid- and late-nineteenth century scientific and philosophic trends.\(^5\)

Stieglitz's early philosophies were firmly grounded in *Wissenschaftideologie* (the German academic research ideal), photochemical theory and practice, empiricism, perceptual theory, and materialism--all legacies from his 1880s Berlin education. In addition, as a young man he was deeply influenced by German idealist and romantic philosophies, which led him to consider photography a spiritual and intensely personal calling. However, as his work matured in the 1890s and as he committed himself to establish and lead an ongoing forum for photographic polemics (first in *American Amateur Photographer*, then in
the Camera Club of New York, and finally in the Photo-
Secession, the organization he founded to be a model
polemical unit), Stieglitz's philosophy also matured. It
became an experimental and experiential philosophy, a
flexible and dynamic meld of German laboratory theory and
late nineteenth century scientific idealism.

Stieglitz's working philosophy, expressed in his
photographs and editorial slant of c. 1905-10, was
predicated on the potential of abstract ideas to enter
into dynamic relationships with one another and thus
create patterns for invention and discovery. These
years, traditionally given little attention by Stieglitz
scholars (they have been identified merely as prefatory
to the halcyon years 1911-13, when Stieglitz achieved
international renown for his radical sponsorship of
modern art in his gallery "291") were actually more
important than those immediately following. This is
because Stieglitz's rationale for modernism, a rationale
as radically experiential as William James's and John
Dewey's contemporary philosophical notions and as ab-
stract as Ernst Mach's contemporary notion of science,
emerged in 1905-07 and was an active generator of avant-
garde art critical thought by 1910.

Indeed, Stieglitz's rapid acceptance and prosely-
tism of early twentieth century European art are directly
attributable to his development as a thoroughly modern
creative thinker. Like Henri Matisse, Paul Cézanne, and Pablo Picasso, whose work he exhibited from 1908 to 1911, Stieglitz believed in formal and conceptual relationships verified through experience. That Stieglitz came to these conclusions via avant-garde science, then reverified them in paintings lends considerably more weight to his established status in early twentieth century art history, and garners a more significant place for him in early twentieth century cultural history.

In this contextual study I shall attempt to address these critical issues and lacunae in Stieglitz scholarship. I shall also indicate cross-cultural alignments in the writings of Stieglitz's "first string" critics Sadakichi Hartmann, Charles Caffin and Marius de Zayas, all of whom were influenced by him. Stieglitz's achievements in mathematics were recognized by 1880. However, the period I have chosen to analyze, 1882-1910, is bracketed by two key aspects of Stieglitz's early career: the beginning of his scientific education, and his simultanist and constructivist photographs of New York City. The first initiated the early experimental phase of his photographic career which culminated in his serial work of 1890-98, and the second paralleled his greatest experimental endeavors, the modern art forums "291" and Camera Work.

As shall be demonstrated, this thirty-year span of
Stieglitz's experimentalism also defines a multiform and complex one in the domain of the sciences. Writing of the nineteenth century, David Knight has observed, "the 'two cultures' had not yet diverged. Those working in the sciences and those engaged in literature, painting, politics and theology all shared much common ground." If only one figure could be chosen to exemplify this common ground, Alfred Stieglitz would be a more than apt selection.

Before delving into a subject that has such wide-ranging ramifications, it was necessary to define issues that will not be addressed. First and foremost, this is not a biography of Stieglitz, his immediate predecessors in artistic photography, or the major critics who associated with him. As shall be noted in appropriate chapters, these individuals have already been extensively documented in the literature on the American avant-garde.

A second qualification concerns the nature of the correspondences and connections identified herein. Many are speculative, based upon congruence of time or place. For example, that Stieglitz studied and photographed in Germany for most of the 1880s is known. That he attended lectures given by the eminent physicist Hermann von Helmholtz and maintained cordial contact with the physiologist Emil du Bois-Reymond, another well-known Berlin scientist, are also well established details of his
biography. That he knew the work and writings of other major theoreticians who were active during this period, particularly the physicists Mach and Henri Poincaré, is at least probable. The ideas of these last-named thinkers do dovetail in part with Stieglitz's; thus I have seen fit to suggest a relationship. Furthermore, certain theorists whose writings are relevant to my arguments are now known solely by the writings which I discuss. Cognizant of these biographical ellipses, I have noted them, then proceeded to analyze the works of these men in selected contexts.

Chapters One, Two, Three, and Four introduce Alfred Stieglitz and follow him from his high school years through the late 1890s. It is the intent of these chapters to establish Stieglitz's multi-faceted early philosophy of science and to trace it through his laboratory training, early writings, editorial ventures, and photographic work. Therefore, the opening chapters include pertinent material on German laboratory science and scientific instruction, experimental theories derived from German laboratory models, German perceptual theory and materialism, and German idealism. Particular attention is given to Stieglitz's New York and European pictures of the mid-1890s, the most philosophically rich and scientifically premised work of his pre-Secessi onist career.
In Chapters Five and Six, Stieglitz is situated within the early philosophy of the Photo-Secesssion, an organization he created in 1902 to further the development of aesthetic photography, yet within the confines of which his initial scientific orientation was put to a severe test.

Now ensconced within the world of salon photo-politics and determined to be the key representative of American photographic artists, both in practice and as an administrator/spokesman, Stieglitz could have abjured science for aesthetics, as did F. Holland Day, his chief rival. Having worked tirelessly to develop the New York Camera Club and his photoengraving firm into laboratories modeled on German prototypes, and having been thwarted in both ventures, he could have abandoned his educational zeal.

However, he did not do so. An aesthete in print and in his photographic prints, he remained a scientist in practice, cloaking his advances in photochemistry in the garb of aesthetic treatises and making the manipulated print, a fin-de-siècle art form, a chemical tour de force. And he surrounded himself with writers who, following his example, then setting examples of their own, peppered the photography press with mini-treatises conjoining experimentalist thinking and art. Stieglitz's experimental philosophy and the philosophies of Hartmann
and Caffin, his key writers at the turn of the century, were pivotal undercurrents within the Photo-Secession.

Chapter Seven foregrounds Stieglitz's science, then traces how its scope was expanded. This reorientation was accomplished through the experimental and instrumental frameworks Stieglitz established in the Little Galleries of the Photo-Secession, the exhibition rooms he rented late in 1905 to showcase Secessionist prints, and in *Camera Work*, the group's journal which he founded in 1903.

Stieglitz had the requisite background and had associated himself with the requisite individuals to evolve these new philosophies (parallel to those of the European and American scientific avant-garde) at this time. It will be seen that he was further stimulated to do so by the need to define a philosophy for his expanded operation and by four key movements of that time: the technological and cultural progressivism of the St. Louis Congress of Arts and Sciences, held in conjunction with the International Exposition of 1904 (where his brother, the University of Chicago chemist Julius Stieglitz, lectured), American instrumentalist psychology (represented by spokesmen at the St. Louis exposition), the drive to establish an international salon of fine art photography, and the development of the American experiment station from 1887 to 1906.
The final three chapters of this dissertation are concerned with what I have here termed the revolution of 1905-10, which was fomented by Alfred Stieglitz's aesthetic laboratory.

Nineteen hundred five was the year that the philosophy of the Little Galleries made a dramatic forward leap: Stieglitz's return to a scientific premise for photography and for aesthetics in general paved the way for one of his most important contributions, his construction of Camera Work as an experimental forum open to theories of modern art, photography, and the potential interrelationships among them.

Nineteen hundred seven saw the realization of Stieglitz's most advanced photograph of the first two decades of the twentieth century, The Steerage (Fig. 2). A thoroughly experiential and idealist image premised on concerns identical to those that Mach defined as "thought experiments" and "direct description," The Steerage propelled Stieglitz into the most avant-garde experimentalist phase of his photographic career.

Both aspects of Stieglitz's scientific modernism were seminal for his philosophical rooting of European modernist art in America. I conclude my study with a retrospective and global look at Alfred Stieglitz's philosophy of life, art, and science.
Source Studies in Nineteenth Century Science

Whereas texts concerned with late nineteenth century philosophy, science, and psychology are legion, I have relied upon those which conscientiously attempt to place scientific thought in the context of the time, and to treat it as a cultural phenomenon, akin to literature and art. The best contemporary analyses are David Knight's 1986 text The Age of Science, Stephen C. Brush's 1978 work The Temperature of History, Mary Jo Nye's 1972 book Molecular Reality, William A. Wallace's 1974 book Causality and Scientific Explanation, and Alexander Welsh's 1973 Victorian Studies article, "Theories of Science and Romance." Although Maurice Mandelbaum's History, Man, & Reason of 1971 is an excellent source for definitions of positivism and idealism, the aforementioned texts expand the meanings of these notions (which art historians as a rule have been content to use without qualification), and stress their varying historically contingent meanings.  

German nineteenth century scientific philosophies have received thorough and concise treatment in several recent studies. These include Barry Gower's "Speculation in Physics: The History and Practice of Naturphilosophie," published in Studies in the History and Philosophy of Science in 1973, Frederick Gregory's Scientific Materialism in Nineteenth Century Germany of 1977,
Timothy Lenoir's *The Strategy of Life* of 1982, and a series of articles on German university science written by R. Steven Turner. These are not summary outlines, but philosophically rich works which trace German idealistic and experimental thought--Stieglitz's intellectual heritage--to its romantic, vitalist, and utilitarian origins in the late eighteenth century. ⁸

Lenoir has chosen to follow the vitalist currents of German science and philosophy through mid-nineteenth century vital materialism and functional morphology. His analysis of the thought of Justus Liebig is particularly relevant as Stieglitz's laboratory aesthetic can be traced to Liebig's. Gregory, examining the thought of the scientific materialists, has determined that their world view, while geared to the examination of material phenomena rather than speculative concepts, was idealist in that it considered the discovery of the structure of matter a philosophic quest. Stieglitz felt the same way. Turner's account of German academic philosophy and practice, specifically as exemplified in Liebig's laboratory, is directly relevant to Stieglitz's background, professional career, and scientific world view.

Nineteenth century European evolutionary theory, the undercurrent of many ideas associated with Stieglitz, particularly in the emergent years of the Photo-Secesssion (1902-04), is comprehensively analyzed in Robert J.
Richards's *Darwin and the Emergence of Evolutionary Theories of Mind and Behavior* (1987), Peter J. Bowler's 1984 *Evolution, The History of an Idea*, and in *Evolutionary Thought in America*, a multi-disciplinary anthology edited in 1956 by Stow Persons. Although a Darwinist revisionist phase is in full swing at this time and publications on evolution are legion, Bowler has shown himself to be one of the key contemporary historians of Darwinian and non-Darwinian theories; his treatment of late nineteenth century Neo-Lamarckism has been of particular interest to this study because in Neo-Lamarckism and in the Stieglitz circle evolution was considered to be progressive, cumulative, and teleological, that is, tied to final causes.⁹

Varieties of early twentieth century American idealism and experiential philosophies are treated concisely in Frederick Copleston's 1966 *History of Philosophy*. In addition to this work, several studies of scientifically related thought in America have been of value to these discussions: they are Morton White's 1972 *Science and Sentiment in America*, Arthur Wertheim's *The New York Little Renaissance* of 1976, and Ronald E. Martin's *American Literature and the Universe of Force* of 1981.¹⁰

White's text includes discussions of Ralph Waldo Emerson, Walt Whitman, James, and Dewey (all of whom
figured in the Stieglitz circle, although only James and Dewey are discussed here) in order to emphasize that American sensation and American investigation were philosophical partners in the late nineteenth and early twentieth centuries. Wertheim, moreover, brings forth a number of examples from drama, music, and literature to show that "experimentation" as well as experiential philosophies were important hallmarks of American radicalism. (He has not, however, traced the origin of the American cultural "experiment" to German laboratory science. That connection is a key part of this study.)

Finally, individual scientists whose writings have been most relevant to my inquiry have been treated in a number of recent monographs, dissertations, and articles. Of particular merit were Gary Hatfield's 1979 dissertation, "Mind and Space from Kant to Helmholtz," Jonathan Bentley's article, "The Chemical Department of the Royal School of Mines. Its Origins and Development under A. W. Hofmann," published in 1970 in Ambix, and three works on Ernst Mach: J. Bradley's Mach's Philosophy of Science, published in 1971, John T. Blackmore's Ernst Mach, His Work, Life, and Influence of 1972, and "Mach's Theory of Research and its Relation to Einstein," an article published by Paul Feyerabend in 1984.11

These are superb monographs as well as significant contributions to the analysis of idealism and experimen-
talism in late nineteenth century thought. Blackmore's chapters on Mach's extensive philosophical influence are particularly relevant since they help to substantiate my claim that Stiegltiz was influenced by Machist ideas.

An Overview of Interdisciplinary Modernism, Stiegltiz, and Turn-of-the-Century Aesthetics

In 1959 Henry F. May published a definitive examination of American cultural history, The End of American Innocence. A Study of the First Years of our Own Time, 1912-1917. Anchoring early twentieth century ideas in a firm bed of experiential idealism and evolutionary notions of progress, May identified the Outsiders, Scoffers, Amoralists, and Liberators of a new age, among whom he included such science-oriented intellects, who will also figure in this study, as Poincaré, James, Dewey, Bernard Shaw, and Maurice Maeterlinck. The youthful minds of the Liberation, May theorized, found ambiguity a source of strength; they sought out these intellects in order to "experience traditional emotions in a brand-new, above all, scientific way." The Liberators' central dictum was that life transcended cognitive activity; that ideas should be judged not by adherence to a preconceived truth but by the vitality that they contained.

According to May, the Stiegltiz circle (incorporat-
ed in his section entitled "Intellectuals") affirmed experimentalism and mysticism, but suffered from certain arty manners and a self-righteous aloofness. While May's analysis of the tone of the writing sponsored by Stieglitz may be correct, his suggestion that this criticism was self-contained leaves little room for analyzing its wide-ranging intellectual concerns that, in my view, make Stieglitz's enterprise worthy of study as art and as cultural inquiry.

In an attempt to fix and clarify some of the ambiguities offered by the spokespersons of the new century, Betty Eilene Hillstrom Chmaj identified a phenomenon that she called "The Double Attraction" in her so-titled 1961 dissertation (University of Michigan). The American artistic will, Chmaj wrote, was torn between Europeanism and Americanism as the century turned. "Seeking new inspiration and a more congenial milieu in which to work, [American artists] have responded to the lure of Europe, only to discover, in the end, that the language of their art had a way of pointing back to their native sources."14

Chmaj's double list, ten paired characterizations of "The American Ideal" and "The European Ideal," is, however, dangerously simplistic. For example, the European ideal for Chmaj involved subtlety, complexity, and depth while the American counterpart was defined by
directness, simplicity, and adherence to the "vernacular." Furthermore, her claim that one might search for causal relationships among these qualities is suspect for the very reason that causality as a mode of thought was being questioned and repudiated at this very time, namely around the turn of the century. Finally, in searching for antitheses, she seems not to have considered that American and European intellectual trends might have served to reinforce each other, particularly in the intellectual makeup of broad-minded and well-read individuals.

Nonetheless, Chmaj's study is valuable for its insights on evolutionism, Absolute Idealism, late nineteenth century Puritanism, and the importance of technique to modernism. She pinpointed a crucial juncture in the new era, the transition from romantic anti-technological to hardheaded pro-technological thinking. For Chmaj, Stieglitz's critics spearheaded an age of discovery; they sought new means to "express the dynamic through design."  

A number of studies on technological optimism in art, architecture, painting, and cultural thought were published in the 1960s, 1970s, and 1980s. Of relevance to this study in a general sense were Kent Kirby Kreuter's 1963 dissertation, "The Literary Response to Science, Technology and Industrialism: Studies in the

The negative side of that coin was extensively treated by Debora Leah Silverman in her 1983 dissertation "Nature, Nobility, and Neurology: The Ideological Origins of "Art Nouveau" in France, 1889-1900" (Princeton). Silverman's chapter on modernity, neurology, and neurasthenia provided valuable source material for the thought of Sadakichi Hartmann, a confirmed modernist and partisan of psychologically based aesthetics. This study argues that Hartmann's modernity was even more expansive, because it entailed his experience and description of outer as well as inner realities.

The most comprehensive recently published studies on technological optimism in the general context of the American avant-garde are: Valerie Fletcher's 1983 exhibition and catalog Dreams and Nightmares, Utopian
Visions in Modern Art, Technological Utopianism in American Culture by Howard P. Segal (1985), and Shifting Gears by Cecilia Tichi (1987).

Fletcher's chosen field, pre- and post-World War I thought in Europe and America, is immense, but her discussion of H. G. Wells, an excerpt from whose writings appeared in Camera Work, was of great value. For Wells's writings, like those of Caffin and Hartmann, keyed the pace of progress to that of science and technology and placed that pace in perpetual, evolutionary motion.21

In his book Segal has claimed that American technological optimism was a significant index to the changes in American society in the early twentieth century. The important transition, Segal has argued, was from a mechanical to an organic order. Crucial to the ideas that appeared and were developed in Stieglitz's scientifically oriented milieu are certain of the characteristics of organism Segal has stipulated: the machine as metaphor and model; greater specialization of thought paired with greater complexity and interdependency of relationships; the notion of change as more evolutionary or spontaneous than causality; the use of metaphors taken from chemistry and biology; and "the additional notion of change as producing a temporary instability, which, of course, ultimately achieves equilibrium."22

In Shifting Gears, Tichi has limited her discussion
to the notion of early twentieth century gear-and-girder technology and machinist metaphors. Her primary thesis, similar to Ronald Martin's, is expressed in her statement that, "The gear-and-girder era, powerful through the late nineteenth century and well into the twentieth, fostered a conception of the human being as a machine for the consumption and production of energy." 23 Tichi's chapter on Frederick Taylor's Scientific Management and efficiency and her analysis of the writings of Henry Adams have provided useful frameworks within which to evaluate the later writings of Caffin, who became interested in Taylor's ideas. Although these writings do not enter this study directly, Caffin's ongoing theses—efficiency and forceful thinking—are best understood in this cultural context.

Varied turn-of-the-century theories conjoining art, evolutionism, and organic consciousness have been illuminated by a number of recent studies. Lois Fink's "Nineteenth Century Evolutionary Art" (1970) places progressive, late nineteenth century American criticism in the context of the dynamic and organic aesthetics of Herbert Spencer.24 Sherrye Cohn's 1982 dissertation (Washington University) and book on Arthur Dove, which she followed in 1985 by an article on Dove and the organic analogy, reveals much about a member of the Stieglitz circle's preoccupation with evolution and
growth. Premising her research on a mystical rather than strictly scientific basis, Cohn has cited a number of turn-of-the-century European and American evolutionists and morphologists as scientists in tune with Dove's ideas. This study acknowledges the contextual approaches of Cohn and Fink, but specifies "science" more rigorously.

Mysticism and the occult also have figured in Linda Henderson's recent article on the English writer Edward Carpenter. Citing Ernst Haeckel's doctrine of Monism, the unity of non-organic and organic matter, Henderson has applied this doctrine to Carpenter's theory of the evolution of consciousness, and tied it--through Carpenter--to the Stieglitz circle. However, she has not examined other, more rigorously scientific and to my mind more apropos interpretations of monism, such as, for example, Ernst Mach's notion of the "viscous One" (the substratum of thought and matter) out of which both the elements of perception and perceptual activity arise. Stieglitz was an experiential thinker in the years around 1910, not a mystical one.

The major works on the interrelationship between late nineteenth century art and psychology are José A. Arguéllas's book *Charles Henry and the Formation of a Psychophysical Aesthetic* (1972) and Filiz Eda Burhan's comprehensive dissertation "Vision and Visionaries:

In her text, Burhan has stressed that the demarcation between symbolism and naturalism (movements associated with Stieglitz) is a concern with inner realities as opposed to outer "facts." She has suggested that major figures of nineteenth century science--Spencer, Hippolyte Taine, Claude Bernard, Hermann von Helmholtz, among others--might be discussed in the context of introspective psychology, then has related their ideas to the criticism of the post-Impressionist European avant-garde. Unfortunately, her correspondences, albeit cogent, fail to take two factors this study analyzes into account: the crucial importance of empiricism to avant-garde scientific thinking, and Ernst Mach's influential philosophy.

Arguèlles’s biography of the psychophysicist Charles Henry, a friend of the French painter Georges Seurat, includes extensive discussions on the history and precepts of psychophysics, as well as mystical mathematics. Both he and Burhan have revealed a strong bond between late nineteenth century introspective psychology and mathematics. Stieglitz acknowledged this bond (he patronized the writing of Sadakichi Hartmann, a partisan of mystical mathematics), but as this study demonstrates,
he also stressed rigor and exactitude in mathematical reasoning, in his post-\textit{Steerage} works seizing geometry as a model for photographing simplified, integrally related forms.

Three recently completed dissertations have provided valuable source material on avant-garde and conservative critical trends in early twentieth century America. While not specifically science-oriented, the first of these, Judith K. Zilczer's "Aesthetic Struggle in America" (University of Delaware, 1975) is a cogent inquiry into the origins of anti-mimetic art theory. Her rationale for avant-garde criticism includes evolutionary thinking, decorative and constructivist aesthetics, anti-conventionalism, and musical analogy. All but the latter have been brought into this discussion as well.\textsuperscript{23}

Howard Risatti's "American Critical Reaction to European Modernism, 1908 to 1917" (University of Illinois at Urbana-Champaign, 1978) is an extensive cross-section of trends in American art journalism. Unlike Zilczer, who has focused on certain basic theoretical concepts of modernist criticism (such as musical analogy), Risatti has considered the broad spectrum of public opinion. Notwithstanding his need to establish order and sequence within this body of thought (which ranges beyond the scope and time frame of this study), Risatti's discussion of the impact of science and progress has served as a
fruitful source.

Of particular importance was Risatti's acknowledgment of the "painting of sensations" theory as a scientific one. Both intellect and intuition defined scientific art theory in avant-garde circles, he has argued, further stating, "The seemingly emotional and intuitive aspect of sensations, which had been condemned by many opponents of the modernist theory of painting, could actually help in the quest for knowledge." Risatti's reading of science-oriented critics such as Hutchins Hapgood and Caffin does not delve substantially into scientific issues; Caffin's debt to force-related and technological thinking, for example, is not mentioned. Risatti has, however, indicated the importance of evolutionism and industrial modernity to avant-garde aesthetics, and he has discussed other issues that, although science related, are not under investigation here (the Child Study Movement and debates about primitivism).

Finally, Virginia McCord Mecklenburg, in her "American Aesthetic Theory, 1908-1917" (University of Maryland, 1983), has focused on the complexity of the theoretical frameworks which confronted critics as they attempted to explain modern art to American audiences. Mecklenburg has maintained that conservative ideas are as worthy of study as avant-garde ones; her analyses of the writings of Kenyon Cox and Royal Cortissoz, prime repre-
sentatives of the conservative camp at the time of *Camera Notes* and *Camera Work*, form an excellent background. (As they are not science based, these conservatives' works are not discussed in this study.) Nonetheless, her penchant to categorize and limit--for example, she labeled Caffin a proponent of socializing art--tends to present the significant critical front-runners too one-dimensionally.30

**Stieglitz Studies: Aesthetics, Naturalism, and Anti-Intellectuality**

In addition to these recently published works on American modernism and the Stieglitzian avant-garde, a number of earlier sources, published from the first decade of the twentieth century through the 1930s, have provided valuable, first-hand accounts of Stieglitz, his mystique, and his accomplishments. More recent Stieglitz scholarship has built on, expanded, and questioned this foundation.

The first writer to comprehensively evaluate Stieglitz was Charles Caffin himself in his 1901 survey *Photography as a Fine Art*. There, Caffin described Stieglitz as a tapestry of which the warp was his scientific, that is technical knowledge, and the woof his artistic temperament. For Caffin, however, Stieglitz was not an intuitive intellect to admire, but a motivating
force to be reckoned with and followed. His cogent analyses correctly defined not only his mentor's focus, but also established a scientific focus for the Photo-Secession, thereby differentiating that group from other purely aesthetically motivated photography organizations.31 Caffin was pivotal for Stieglitz as the latter proceeded to revitalize the Photo-Secession in 1904.

Photography and general interest journals devoted a substantial amount of editorial space to the Photo-Secession, Stieglitz's self-proclaimed revolutionary photography club, soon after it was formed in 1902. Primarily of documentary importance, several of these feature articles, penned by Caffin, Hartmann, and Roland Rood, offer insider accounts of an emergent technical and philosophical pictorialist program; they will be examined in the context of Photo-Secessionist philosophy.

Of additional interest, in that it gives a psychological twist to the gatherings of Stieglitz and his closest associates, is the fiction writer Temple Scott's "Fifth Avenue and the Boulevard Saint-Michel," a not-so-fictional account of the travels of one "Michael Weaver" (actually the American painter Max Weber), written in 1910 for Forum magazine. Stieglitz, Scott suggested, was a priest-confessor and amateur psychologist in his dealings with his friends. Scott noted that the task
Stieglitz had set for himself, the encouragement of sincerity in art and thought, entailed the deft utilization of introspective, sensation based skills. While not going so far as to intimate that Stieglitz's New York gallery "291" was a laboratory dedicated to the cultivation of originality, as Stieglitz himself was to do, Scott did imply that this workplace was indeed keyed to experimentation. Scott's hypothetical discussion among the "291-ers" in "Fifth Avenue" touched upon issues that we shall be examining in turn: technical precision, formalism, anti-traditionalism, and idealism.

According to the critic J. Nilssen Laurvik, who, like Scott, was an intimate of the "291" circle, Alfred Stieglitz was an artist, scientist, and efficiency-oriented modernist. His photographs, Laurvik wrote in 1911, were technical tours de force, but they were not just experiments intended to verify certain hypotheses, which, having been documented, might be abandoned. Conceived over a long period of time and taken when conditions were psychologically right, they retained an abiding spirit. For that spirit to inhere, however, Laurvik perceptively stated that the Stieglitz photograph also had to possess "the simplicity and coordinate complexity" of a machine-generated image. Again, The Steerage and its successors are the most successful and succinct realizations of this program, which Stieglitz
derived from late nineteenth century German scientific idealism.

In the nineteen twenties and continuing into the thirties, Stieglitz criticism became virtually an independent literary genre. During these decades, American writers such as Sherwood Anderson, Waldo Frank, and Paul Rosenfeld elevated Alfred Stieglitz to a status approaching sainthood; for them he was "a moral model, the very opposite of the crass businessmen who dominated America."\(^3^4\)

It was during these years that an organic aesthetic, a rather nebulous one relying upon biology and growth, became associated with Stieglitz. For example, Anderson compared Stieglitz to the farmer craftsmen he had known as a youth in Ohio. Stieglitz was, Anderson averred in The New Republic in 1922, "the prophet of the old workmen--who by the intensity of his love of tools and materials has made himself such an outstanding American artist."\(^3^5\) According to both Frank and Rosenfeld, Stieglitz was the quintessential American representative of organicism. Wanda Corn, later analyzing the writings of these two men, has defined this sense of organicism as "accepting his environment, [sinking] himself organically into the very fibers of American existence, and [singing] our country's joys and tragedies."\(^3^6\)

Whitmanesque in their poetics, Frank and Rosenfeld
remained committed to literature as essentially a non-scientific pursuit, and to Stieglitz as a spiritual mentor. Nonetheless, they did suggest that a philosophic framework might be the most appropriate one in which to situate and expand upon Stieglitz's accomplishments.

The first such framework was the major Stieglitz publication of the nineteen thirties, the anthology *America & Alfred Stieglitz, A Collective Portrait* (1934). Edited by Frank, Rosenfeld, Lewis Mumford, Dorothy Norman, and Harold Rugg,37 this volume has been described by Edward Lloyd Paynter as part of a cultural strategy designed to set Stieglitz at the center of American experience.38

Rosenfeld's contribution, "The Boy in the Dark Room," is predictably transcendental. However, it proceeds beyond poetics to address Stieglitz's psychological bent, an approach that Scott had merely suggested. In it Rosenfeld suggested for the first time that Stieglitz's vision was a broad one, nurtured by the writings of Goethe, Schopenhauer, Bergson, Hegel, notions of empathy, and introspective psychology. Indeed, Rosenfeld correctly stipulated that the artistic problems which challenged Stieglitz were not primarily technical but psychological. Stieglitz's touch was suspended and empathetic, Rosenfeld wrote, "[it] asks nothing for itself alone, and desires life for its object and the
conditions making for that object's persistence."³⁹

For Stieglitz in and after 1907, the conditions for an object's persistence were elemental, that is, to exist as a photographic image an object had to be reduced and transformed into a dynamic structure of elements—planes, volumes, and lines. Interacting with one another, each of these elements was to become a taut reminder of the constructing imagination.

According to Stieglitz's good friend, the photographer Paul Strand, who also wrote for the 1934 Collective Portrait, Stieglitz's introspection-based psychology, his organism, and his spirituality merged with his camera sense or mechanism.⁴⁰ Some twelve years earlier, Strand had termed contemporary, mechanized society the new God. "Not only the new God but the whole Trinity (God the Machine, Materialistic Empiricism the Son, and Science the Holy Ghost) must be humanized lest it in turn dehumanize us," he had stated in 1922.⁴¹ In his essay, "Alfred Stieglitz and a Machine," Strand wrote that Stieglitz was the incarnation of mechanized deity:

...when the camera machine is guided by a very sensitive and deeply perceptive artist, it can produce perfectly embodied equivalents of unified thought and feeling. This unity may be called a vision of life—of forces taking form in life....[Stieglitz's photographs] may...be seen as symbols of the machine used not to exploit and degrade human beings, but as an instrument for giving back to life something that ripens the mind and refreshes the spirit.⁴²
Strand's reading of Stieglitz, whom he knew very well, is significant not only for its complex, technological basis, but for its initiation of the discussion of a critical operating factor in the Stieglitz circle: mutually reinforcing oppositions. In his gallery, according to Strand, Stieglitz had devised experiments in photography and anti-photography, namely French and French-inspired painting and sculpture. He did not do this in order to establish hierarchies, but binary or dialectical relations; according to Strand:

291 became a laboratory for examining and clarifying this relativity, of ascertaining what they meant, in terms of each other. Here the experiments of photographers and painters were presented with scientific detachment, with interest directed completely towards discovering the meaning and significance contained in the works themselves....For the first time perhaps in the history of art, a conscious effort was made here to measure esthetic values impersonally, that is, in terms of the spontaneous reactions (whether hostile or friendly), of the many different kinds of people who came from every walk of life--every social stratum--to the little laboratory.43

Had Strand carried this laboratory analogy further, to an analysis of the Camera Work issues concerned with "measuring" the work of one principle against another (such as the April 1907 issue on the straight and modified print), he would have found a similar process at work. Had he analyzed what "laboratory" and "measurement" might mean for Stieglitz, he would have had to delve into Stieglitz's chemical background, which as I shall demonstrate is quite illuminating.
Finally, the 1934 Collective Portrait contains an article by critic Evelyn Howard, "Stieglitz and the Philosophy of Science." In this essay, Howard's premise is that Stieglitz's transcendentalism was paralleled in the thought of scientists active in the nineteen twenties and thirties. "Science demands of its greatest followers," she wrote, "that they be capable of great living direct perceptual insight, roving hearts and eyes which forever refuse to be bound by their intellectual conceptions--and in the same breath they must be capable of intensive intellectual use of concepts."

However, Howard's ideas suggest parallels with a previous generation, namely the psychologists, mathematicians, and physicists of the turn-of-the-century whose theories were based upon internal, aesthetic coherence and experimental confirmation. As shall be examined in discussions of Stieglitz and Stieglitz's explicators, Ernst Mach, Henri Poincaré, and Pierre Duhem, all found science an eminently aesthetic and conceptually demanding pursuit. Likewise did Stieglitz's professor Hermann von Helmholtz, whom Howard was the first to cite as a philosophical analogue to Stieglitz.

Stieglitz continued to be eulogized and extensively quoted in the nineteen forties. Although his legend continued beyond his death in 1946, a new generation of scholars came forward with closely-reasoned and contextu-
al studies of his life and milieu.

The first was Joseph Shiffman's "The Alienation of the Artist: Alfred Stieglitz," published in *The American Quarterly* in 1951. Shiffman, while imbued with the aura of the by-then potent Stieglitz legend, was the first to cite several philosophic and scientific parallels that will be examined further in this dissertation: the instrumentalism of John Dewey, the idealism of Maurice Maeterlinck, and the iconoclasm of George Bernard Shaw. Shiffman intimated that Stieglitz's thought had evolved in a specific direction, away from realism (the novels of Emile Zola and Mark Twain which he had read as a youth) toward spirituality.

While I acknowledge the importance of Zola to Stieglitz, in the present study I will attempt to further specify Stieglitz's evolution, away from a purely technical orientation to a multi-faceted, idealist, and instrumentalist philosophy fed by Maeterlinck, Shaw, and others.

Neil Leonard, in his 1966 *American Quarterly* article "Alfred Stieglitz and Realism," attempted to refute Shiffman. In his text Leonard maintained that Stieglitz's concepts always remained psychologically naturalistic, keyed to those of Zola and to American writers such as Theodore Dreiser and Stephen Crane. Albeit limiting (Stieglitz was grounded in, but not
circumscribed by naturalism), Leonard's reading points out aspects of technological optimism which I shall be examining as well, not only in relation to Stieglitz but to his critic Sadakichi Hartmann: these include a fascination with unfashionable and unexplored aspects of urban life, with change in the New York skyline, with architectural structures, and with movement.

Leonard correctly implied that the object remained a crucial component of Stieglitz's photographic aesthetic. Bram Dijkstra, in his 1969 book The Hieroglyphics of a New Speech: Cubism, Stieglitz, and the Early Poetry of William Carlos Williams, followed Leonard and Strand by indicating that Stieglitz's concept of form was elemental, that is, object oriented and qualified by its thingness. Dijkstra suggested a way of looking at The Steerage and Stieglitz's urban photographs of 1910-11 that I have complemented and corroborated in Ernst Mach's philosophy of science. According to Dijkstra:

The photographer must—begin by seeing all things with perfect precision, perfect penetration. If he does so, and if he is closely attuned to the elements of his own subjective experience, he will be able to recognize in certain natural objects...elements hitherto not yet discovered...manifested through their shapes, lines, and volumes....

Published or completed during the past two decades, a number of documentary and interpretive studies, in addition to those dissertations cited above, have further enriched our knowledge of Stieglitz's education, photo-
graphic production, and activism.

The first work is Yong Kwon Kim's *Alfred Stieglitz and His Time. An Intellectual Portrait* (1970). In this text Kim examined the concept of evolution in the Stieglitz circle, relating it to personalistic issues, that is, to "any work of art or a collection of works which, separately or collectively, should demonstrate in various forms of manifestation the total design or pattern of the artist's personality."\(^5\) In Kim's view, underlying Stieglitz's exhibition policy at "291" and his editorial program for *Camera Work* was a concept of evolutionary aesthetics. Kim investigated possible sources for such an idea and found them not in the general Darwinist temper of the time, but in German romantic philosophy. To substantiate his thesis he studied Stieglitz's early documents, including student diary entries.

While the name Wilhelm Dilthey does not appear in those documents, Kim suggested that that late nineteenth century historian's principle of "inner form" may have impressed the young photographer.\(^5\) In doing so, Kim implied that Stieglitz was familiar with European philosophical and scientific literature of his day, a concept I have chosen to pursue and develop.

One of Kim's ideas, although not extensively developed by him, was that Stieglitz hewed to a spirit of anti-formalism. In his dissertation "291: Alfred Stieg-
litz and the Introduction of Modern Art to America" (Northwestern University, 1970), Roy Anthony Kotynek did develop anti-formalism (a concept initiated by Morton White\textsuperscript{52}) into a significant Stieglitz motive. Kotynek also related anti-formalism to American philosophical and scientific developments of the early twentieth century. According to the author, Stieglitz and his circle participated "in a crude intuitive way" in an attitude defined by Dilthey, Bergson, James, Benedetto Croce, Sigmund Freud, and Albert Einstein. Kotynek defined this attitude as a coming to grips with actual experience, process, and change, and suspicion of all excessively formal approaches to knowledge.\textsuperscript{53}

In Kotynek's view, only the "vitalists," those who maintained open, inquisitive minds, trusted creative intuition, and considered their experience more valuable than intellectualization, had a grip upon the complexities of life.

Kotynek's anti-intellectual, intuitive perspective led him to conduct a thorough exploration of Stieglitz's laboratory in action. Of great value for the present study are this author's documentation and investigation of the concept of experimentation as it applied to the artists who exhibited in and frequented "291," to the visitors who conversed with Stieglitz there, and to Stieglitz himself. Nonetheless, vitalism was an early
nineteenth century phenomenon, and situating Stieglitz within a vitalist context is tantamount to pigeonholing him as a retarda dataire and romantic thinker. Stieglitz, this study shows, was actually a neo-romantic thinker, committed not so much to impersonal forces as to the forcefulness of individual ideas.

Kim and Kotynak suggested that anti-formalism and anti-intellectualism might be fruitful approaches for further Stieglitz scholarship, and these ideas have informed two subsequent dissertations: Gillian Szekely's "Beginnings of Abstraction in America" (University of Edinburgh, 1971) and Larry Hugh Taylor's "Alfred Stieglitz and the Search for American Equivalents" (University of Illinois at Urbana-Champaign, 1973). Taylor's centers upon the by-now familiar, literary concept of organism. Taylor's organism is dynamic, functional, relativistic, and premised upon creative vision. In his view:

...organicism is basically anti-intellectual, and organicists assume that the creative intelligence is closer to ultimate truths than the measuring or contemplative intelligence. The artist, not the scientist, is the important cultural contributor....Since organismic is intuitive, it is also visionary, mystical, and prophetic, even apocalyptic....

The organic biases of Szekely and Taylor, traceable ultimately to the earlier adulatory agendas of Frank, Rosenfeld, and Evelyn Howard, seem to have been instru-
mental in certain other recent authors' tendencies to romanticize, "etherealize," and de-intellectualize Stieglitz.

For example, Marianne Fulton has postulated that Stieglitz was a Platonic and Swedenborgian mystic, Richard Masteller has placed him in a Transcendentalist context, and Peter C. Bunnell has likened Stieglitz's photographs to medieval manuscript illuminations.58 Both Ileana Leavens, in her 1972 master's thesis, and William Innes Homer, in his 1977 book Alfred Stieglitz and the American Avant-Garde, have suggested that Stieglitz came to an understanding of the forces of modern art through reading the analyses of the critics whose articles and reviews he published.57

Such generalizations may indeed be verifiable in part, but they do not take into account Stieglitz's intellectually motivated modernism. This was exemplified in his finely honed sense of form, his knowledge of structural equilibrium, and carefully worked out feeling for simplicity, not to mention his dynamic philosophy of criticism, predicated upon open-ended, counterweighted argument. These qualities are paralleled in the thought of the European and American scientific avant-garde.

Leavens, in her recent book From "291" to Zurich, The Birth of Dada (1983), defined the "291" laboratory as an experimental station for anarchic, proto-Dada thought.
Although she cited the intellectual contributions of Camera Work's critics and grouped together those who wrote specifically on evolution, she seems to have been wary of scientific aesthetics. For her, "291" was simply "the place where each member or participant could realize his own potentialities as an individual...."58

Edward Lloyd Paynter, on the other hand, has embraced certain aspects of science in his own technologically based analysis of Stieglitz. His 1971 dissertation "The Modern Sphinx: American Intellectuals and the Machine, 1910-1940" (University of California, Berkeley) is substantially predicated upon technical concerns. The craftsman, artist, journalist, and technician who was Alfred Stieglitz, Paynter claimed, achieved his own "cultural plateaus" through photography.59 Paynter weakened his argument, however, by giving considerable weight to the fact that Stieglitz's early critics (Harold Rugg, William Carlos Williams, Anderson, Rosenfeld, and Frank) all dealt with Stieglitz's "magical" use of mechanisms to attain organicism.60

Following the direction set by Paynter, but ignoring its scientific aspects, James Strother Terry, in his dissertation "Alfred Stieglitz: The Photographic Antecedents of Modernism" (State University of New York at Stony Brook, 1980), has claimed that "Stieglitz's experiences in photo-politics helped shape aspects of his later
involvement in the modernist revolt." Terry further argued that as a photographer "Stieglitz was less in advance of his colleagues than is often maintained."$1 In Terry's view, Stieglitz's contributions to photographic history were primarily political; his vision was essentially keyed to the naturalist nineteenth century. Furthermore, for Terry Stieglitz's modernism was, as Homer had suggested, shaped by the critics and artists with whom he surrounded himself.

While applauding Terry's documentation and his efforts to demystify Stieglitz, I hesitate to ascribe such little depth to Stieglitz's intellect, for the reasons given above. In my analyses of Stieglitz's early photographs, however, I have relied much upon Terry. It is my intention to show that Stieglitz's photographs were indeed technically brilliant, and that Stieglitz's dedication to photographic experimentation was instrumental in his development as a provocative editor and critic.

Sarah Greenough's 1984 dissertation, "Alfred Stieglitz's Photographs of Clouds," concentrates on Stieglitz's work of the 1920s, and like Terry's, limits itself primarily to photographs--specifically, how Stieglitz's later serial work amplifies and expands upon the romantic and Symbolist themes of his journals Camera Notes and Camera Work.$2

Stieglitz considered his "Equivalents" of the 1920s
to be plastic equivalents of intangible states of being. In order to realize his sensations and construct these images, Greenough has claimed, he had to internalize both the mystical theories of Kandinsky and the lessons of modern art. She has cogently argued that Stieglitz's late works were the result of what he had learned from forty years of experimentation, but she has left the nature of that experimentation open to question and much further investigation. This, of course, is the subject of the present dissertation.

Robert E. Haines, author of The Inner Eye of Alfred Stieglitz, published in 1983, has, in my view, offered the most carefully equilibrated and philosophical approach to Stieglitz and his ideas to date, although his premise is not specifically scientific. In the introduction to his study, Haines has acknowledged organismic to be an important component of the Stieglitz circle, citing the fact that Stieglitz himself

...insisted that all art be "alive," that it contain some measure of the vital essence of universal life. The same criterion held true for all human effort, for everything is embedded in an organic cosmos....he stimulated and encouraged his friends to realize their own unique potentials--even if, as sometimes happened, the products were baffling or distasteful to Stieglitz himself. In his ceaseless crusade to actualize the human spirit...and his insistence on art for life's sake, [he is qualified] as one of the eminent humanists of his time.83

However, Haines has not considered Stieglitz solely from an anti-theoretical perspective. On the contrary,
for Haines Stieglitz's "career, like that of his friend Theodore Dreiser, was a never-ending search for a theory of existence." Haines's text indicates his feeling that Stieglitz's intellect is as worthy of study as his intuition. For instance, Haines described Stieglitz's reading habits in this way:

...his reading was never systematic and...he was innately opposed to conventional methods of judgment. But his reading, though necessarily confined to rest periods away from his camera, was sufficiently extensive for purposes which, like those of the later New Critics, avoided comparative evaluations. Judging each book on its own merits, Stieglitz kept abreast of the latest releases, especially those of his friends, and he unerringly located the works in both literature and philosophy that supported the conclusions he had reached by instinct and intuition.

Proceeding from Haines's still limiting concepts, I have here attempted to also view Alfred Stieglitz as a well-read, wide-ranging, and theoretically-grounded individual. While not purporting to confine Stieglitz's ideas and those of his critics within either an intellectual or an anti-intellectual straitjacket, I have seen fit to propose a number of sources for their views with the intent of judging each on its own merits.

It will be shown that Stieglitz in his capacity as Camera Work's editor operated from a relativistic and instrumentalist position, maintained within an unflagging framework of idealism, positivism, experimentalism, and technologically oriented modernism. I acknowledge
Stieglitz's position on freedom of thought and his organic approach to creation ("Camera Work is more than a picture book of beautiful photographs: it is a vital force," he once said.) In this dissertation I will illuminate more clearly than has been done before the intellectual and practical sources for Alfred Stieglitz's aesthetic ideas, particularly those concerning science.
NOTES


artifact of culture, and that it parallels other culturally-modified communication devices such as the novel and the scientific report. However, his chapter on Stieglitz provides neither a new interpretation based on his model nor new information on the man and his activities.


9. Robert J. Richards, Darwin and the Emergence of Evolutionary Theories of Mind and Behavior (Chicago and London: The University of Chicago Press, 1987); Peter J. Bowler, Evolution, the History of an Idea (Berkeley:


13. Ibid., p. 237.


15. Ibid., p. 8. Chmaj's list also compares American "content, subject-matter (life)" to European "form, technique (art)," and American aspirations to "truth, goodness" to European aspirations to "beauty, intelligence."

16. William Wallace has traced the decline and fall of causality in the late nineteenth century to a number of factors, including the use of notions of probability, a concern with the fundamentals of mechanics, new attempts to describe mass and force, a reaction against Hegelian metaphysics, an interest in logic and formalism, and a concern among scientists with
the philosophic aspects of their disciplines (Wallace, 2: 165).

17. Chmaj, pp. 204, 226, and 264.


19. For example, Zabel cited Siegfried Giedion's remark, "mechanization had 'impinged upon the very center of the human psyche, through all the senses,'" but did not seek to verify it further in the field of psychology.


22. Howard P. Segal, *Technological Utopianism in American Culture* (Chicago and London: The University of Chicago Press, 1985), p. 91. Segal's notion of utopia does not fit in with the Stieglitz circle in so far as the utopians enamored with technology (Edward Bellamy, for example) wished to use it to tame both machines and men. All contradictions were to be resolved in a smoothly running, friction-less society, the utopians believed. Stieglitz, on the other hand, ran his gallery on the "mechanism" of contradiction or binary opposition. One might say that for him change produced a series of temporary instabilities which, having engendered a number of healthy relationships, created the opportunity for new oppositions to emerge.

Segal's notion of organicism, however, aptly describes Stieglitz's 1907 photograph *The Steerage* and the New York series that followed it. In these photographs, Stieglitz maintained a sense of equilibrium because his compositional sense demanded it. In his
gallery and as editor of *Camera Work*, he was much more radical.


32. Temple Scott, "Fifth Avenue and the Boulevard Saint-Michel," Forum, December 1910, p. 671: "He knew them all well. He had listened to their bitter cries in private confession, and had helped when help meant a self-realization and not a self-deterioration....He had set himself a big task--no less a task than the encouragement of sincerity in art; an insistence on the value of expression, not for what it would bring in the open market, but for what it meant as the unique product of a unique individuality."


36. Corn, "Apostles," p. 160. It is interesting to note that Corn wrote from an organicist and anti-scientific position in her exhibition catalog "The Color of Mood, Tonalism in America" (San Francisco: Palace of the Legion of Honor, 1972, p. 5). She seems not to have realized that "an idealism centered on the experience of nature" could also be a scientific, that is, psychological one.


39. Paul Rosenfeld, "The Boy in the Dark Room," in America and Alfred Stieglitz, pp. 69. Another revealing psychological observation of Rosenfeld's is the following: "Like an inventor, he sometimes works for years on a single problem till it is solved; and after having gotten a satisfactory print from his negative, sometimes sets to making it render a feeling latent in it but unregistered by the earlier proof, and gets as many as ten or twelve different sensations out of it" (p. 69).


43. Ibid., p. 284.

44. Evelyn Howard, "Stieglitz and the Philosophy of Science," in *America and Alfred Stieglitz*, pp. 199-211.


46. Howard, p. 203.


51. Ibid., p. 69.


53. Kotynek, p. 52.

University of Edinburgh, 1971), and Larry Taylor, "Search for American Equivalents."

55. Larry Taylor, pp. 2-3.


59. Paynter, pp. 103, 111 and 130.

60. Ibid., p. 100.


63. Haines, pp. xi-xii.

64. Ibid., p. 1.

65. Ibid., p. 15.

CHAPTER TWO

ALFRED STIEGLITZ'S EARLY SCIENTIFIC AND PHILOSOPHICAL BACKGROUND

Although Alfred Stieglitz has been the subject of numerous recent scholarly studies and biographies, each noteworthy in its intent to disentangle the strands of the Stieglitz legend and to reevaluate Stieglitz's actual contributions to the history of photography and American modernism, few students of the period have given much thought to his scientific background and philosophy.

While it is true that Stieglitz himself had very little to say about the subject, we know that his early reading and influences were both philosophical and scientific. We also know that the young Stieglitz had unusual acuity in mathematics, an interest in engineering, a love of chemistry, and a drive for thoroughness and perfection in the projects he undertook. Finally, we know that Stieglitz placed the highest value upon the power of visual and psychological perception.

Integrating these traits, which were developed during his high school, university, and pre-1890 adult years, with what is known of late nineteenth century scientific philosophies, provides sufficient foundation to place Stieglitz's photographic and critical enterprises in a previously unexplored, but fertile scientific
context.

As has been noted, the Stieglitz legend flourished in the 1920s and 1930s, reaching its apogee in his final years. Due to the assiduous task of interviewing, transcribing, and compiling undertaken by Dorothy Norman, a close friend of Stieglitz’s from 1927 until his death in 1946, a number of his conversations and reminiscences were published from the early 1940s through 1973. Many of these reminiscences covered the period c. 1880-1900, that is, Stieglitz’s formative years.

While it is important to realize that Stieglitz’s remembrances of these years, predicated upon acuteness of psychological self-penetration, were clouded by hindsight and potential self-aggrandizement, it is also pertinent and necessary to accept certain of these statements at their face value—as documents of a personality that thrived upon intensity. As his grandniece S. Davidson Lowe has written:

The major difference between the child and the man was one of disclosure: the former was stoically mum, the latter increasingly discursive, often with the most casual acquaintance. The more the aging man revealed of himself, furthermore, the more puissant his revelations became, especially about the past.¹

Readings, Technical Courses, and Influential Instructors, c. 1880-83

The interests and occupations of his German-born parents prefigured Alfred Stieglitz’s later concerns.
Edward Steiglitz, Alfred's father, was a craftsman of mathematical instruments. He made his financial mark in his own dry goods importing business, Hahlo & Steiglitz, which he had formed in partnership with fabric dealer Hermann Hahlo in 1857. Edward was an avid gourmet and amateur painter, but his sights were set upon technological development and the appurtenances of modernity.

Having moved his family from the outer environs of New York City to Manhattan in 1871, when Alfred was seven, he engineered his new brownstone for maximum efficiency, utility, craftsmanship, and comfort: ice water piped to every floor, an expanded steam heating system, and built-in cabinetry marked the residence as one in line with the principles, and possibly the aesthetics, of the Arts and Crafts movement. The interests of Hedwig Steiglitz, Alfred's mother, were primarily cultural; she nurtured a passion for English (and probably German) literature, for art, and for music.

Tenaciousness, perfectionism, and an untiring pursuit of excellence mark the parents' achievements and indicate the atmosphere of challenge and tension that Alfred, the eldest child (born January 1, 1864), would encounter.

Alfred's philosophical and literary interests probably surfaced in the early 1870s, when he and his twin brothers Leopold and Julius were enrolled at the
Charlier Institute, a prestigious private school for boys. Alfred, no doubt stimulated by the examples of his parents, his cousin Adolph Werner (a professor of German), and his parents' friends, commenced a program of self-education in German and American literature.

At this time the young Stieglitz seems to have developed an intense personal identification with the classics that he read, an identification that transmuted the authors' ideas into aspects of his own (albeit fully formulated later) autobiography.³ Johann Wolfgang von Goethe's Faust claimed his particular attention. Although Stieglitz later claimed that he studied Faust because he identified with certain of Goethe's characters,⁴ it is likely that Goethian science, manifest in that work, also interested him.

Goethe's was a romantic science, governed by archetypal forms, biological frameworks of development, and dynamically opposed polar forces.⁵ Goethian nature was not objectively analyzable, yet it was penetrable subjectively, intuitively:

The way forward was not to try to explain through hypotheses, especially mechanical ones; but to look for primal examples, Urphänomene, which...somehow summed up both the concrete instance and the ideal, and to generalize from them....⁶

Goethe's scientific romanticism, coupled with his elevation of the individual, had a substantial impact upon Stieglitz in his later years, when he was intent
upon formulating archetypal and biological "equivalents" to thought. This is evident in Stieglitz's statement to Norman, "Beauty is the universal seen." He also explained to her, "The subconscious pushing through the conscious, driven by an urge coming from beyond its own knowing, its own control; trying to live in the light, like the seed pushing up through the earth--will alone have roots, can alone be fertile."7

In Stieglitz's youth and early professional years, the period under examination here, Goethe's influence was less scientific than spiritual. Along with the related ideas of other German romantic writers which the young Alfred consulted from time to time, it provided a framework for investigations of evolution, development, feeling, and experience.8 However, at this time Stieglitz also felt that these investigations were scientific pursuits, subject to hypothesis formation and meticulous empirical verification.9

At the age of thirteen, Alfred Stieglitz was transferred from the Charlier Institute to P.S. 55 (Townsend Harris High School), a move necessitated, he later recalled, by his father's desire to "democratize" his children's education.10 By the time he graduated from high school two years later, he was at the head of his class scholastically, and had occasionally been asked to substitute for the instructor.
Alfred's forte was mental arithmetic. As he later recounted to Norman:

One day one of the members of the Board of Education appeared during a mental arithmetic test. Meighan [the instructor] said to this man, "I have a boy in this class who beats anything I have ever seen. Give him a mental arithmetic question and he will give you the answer before you finish the question." The Board of Education man said, "That is a good yarn. But I will bet you a high hat that I will put a question to him and he will not be able to answer it that fast." Meighan accepted the bet and the question was put to me. I answered long before the end of the question....I was amused. I took the matter for granted and did not give a thought to how I did it. There must have been some method, but I was not aware of it.\textsuperscript{11}

Alfred Stieglitz's facility in mental arithmetic, it would appear, was one of the factors that led his father, in consultation with Adolph Werner, to select a career in mechanical engineering for his son. A lack of sufficient academic challenge in the metropolitan New York educational system for Alfred and his brothers and sisters, along with other personal factors, precipitated Edward's decision in 1881 "to sell his business and retire" and "take the whole family to Europe, where the children would have a rigorous and thorough education."\textsuperscript{12}

As has been documented in other studies,\textsuperscript{13} Alfred's first year abroad was a lonely and stressful time. As a student at the Karlsruhe Realgymnasium and as a house guest of Dr. Karl L. Bauer, a mathematics instructor there, he was expected to become acculturated to German life, which was very different from what he had known in
America.

However, this was also an intensely liberating period. Alfred's first summer was, as he described it to Adolph Werner at the time, an idyll of pleasant reading. However, by the fall he was determined to excel so as to be able to enter the Berlin technical college (the Charlottenburg Polytechnic) the following year. At the Realgymnasium, the method of teaching encouraged understanding and development of ideas and concepts, not rote learning from texts. This method eminently suited Alfred, who, as Robert Haines explained, felt that serious study was a meld of textual learning and psychological verification of an overriding idea gleaned through personal experience.

Alfred's new course of study also stimulated him to channel and focus his perceptual acuity. As a child in New York, he had already demonstrated his ability to focus and train his senses upon certain visual or auditory phenomena. Bauer not only encouraged this propensity, but demanded it. Every student in his mathematics class was issued not a standard text but a wooden "model," presumably in order to work out problems in solid geometry. As Alfred explained to Werner, "Then every one goes to work at his own business, for there is no copying possible, as every one has a different model." In a more philosophical mode he commented, "I
won't say, that one learns more, but so much I may state, that it is more interesting to see the thing before you, and not always imagine you see it."18

At the Realgymnasium, Alfred's keenness in mathematics resulted in a "plum": he was chosen to be Dr. Bauer's laboratory assistant and given a course of independent study unavailable to the other (and older) students in the class. In his later conversations Stieglitz proudly acknowledged this honor, but probably embroidered it somewhat by describing not his mathematical work, but his by then well-honed facility in "mental arithmetic":

So now that I was in Karlsruhe and listening to one of the classes, the professor of the class suddenly said, "You American, come to the blackboard and show the young men what you know." I looked at the problem written there, and after five or six minutes the professor said, "Aren't you going to begin?" I said, "Wait a moment." I put down one line, my answer. I had been given a problem in higher mathematics. The professor asked, "How did you get the result?" I said, "Is it correct?" He said, "Yes." I told him how I had arrived at the answer. He said he had never heard of such an unmathematical mind. I said, "In America we only care for the answers."19

It seems that, couched within this narrative of mathematical bravado (the following paragraph of this particular conversation recounts an identical feat performed before the professor of higher mathematics at the Charlottenburg Polytechnic, where Stieglitz was subsequently to take classes), is the ghost of a more significant memory. For it was in Germany, specifically
under the tutelage of the chemists August Wilhelm von Hofmann and Hermann Vogel, that Alfred Stieglitz was to learn that his "unmathematical mind" might with great benefit be focused upon process rather than upon the quick achievement of results.

Stieglitz, having honed his mathematical skills during his year at the Realgymnasium, was sent to the Charlottenburg Polytechnic in Berlin in September 1882. It is likely that he continued to take classes in higher mathematics, but his most significant course there was one in mechanical engineering with Dr. Franz Reuleaux.

Previous accounts of Stieglitz's student years have dwelt in considerable depth upon the young man's renunciation of engineering for photography, beginning with the "revelation" in January 1883, when, "heading back to his room after another intensely uninteresting lecture, his eye was caught by a shop window display on the Klosterstrasse: it featured a large black cube with a lens." This event notwithstanding, it is likely that Stieglitz not only found engineering challenging, but appropriated engineering premises as the building blocks of a technologically progressive philosophy.

Reuleaux, a professor of machine design, stressed logic and philosophy in his instruction. His students were expected to develop logical, conceptual, and mathematical skills with which to analyze and classify machin-
ery. By analysis Reuleaux meant the breaking down of
various machines into chains of abstract components.
Reuleaux felt that it was essential to establish mathe-
matical equivalents for these components: mathematics
furnished a universal basis for comparison of one compo-
nent with another, and enabled the student to first
classify, then synthesize his results. Although he wrote
several mechanical engineering texts, Reuleaux's most
widely read book, The Constructor, shows the scope of his
encyclopedic and mathematical mind.21 Stieglitz's later
affirmation of photography as an art consummated and
created by machine design22 is significant, given
Reuleaux's sound instruction in technological design,
function, and abstract thinking.

We do not know specifically which engineering texts
Reuleaux assigned in class, but it is highly likely that
Stieglitz, who was considering a career in mechanical
engineering, and the Berlin engineering community were
aware of the publication in 1883 of Ernst Mach's Die
Mechanik in ihrer Entwicklung historisch-kritisch
dargestellt. Stieglitz may have been referred to it at
this time as well as again during his apprenticeship in
photography. His instructor Hermann Vogel, who was
interested in spectrography, would probably have been
aware of Mach's optical research in refraction, interfer-
ence, polarization, and spectra, and may have mentioned
the Prague physicist's work in his classes.

Although Stieglitz was not to express any direct scholarly interest in either mechanics or spectrography, he was to premise his most advanced photographic work upon Machist experience, functional relationships, abstract structure, and economy of thought. In his own articles on photography, published during the 1890s, Stieglitz was to consider his métier from a historical, technical, and aesthetic standpoint. These too were Machist concerns, concerns which permeated Mach's technical treatises as well as his popular lectures, which probably influenced Stieglitz's work at the opening of the twentieth century.

Two key themes in Mach's text on mechanics possibly influenced Stieglitz as early as the mid-1880s. First, for Mach mechanics was not a discipline dedicated to classification, as Reuleaux would have it; Mach's mechanics was a dynamic science. It was an experiential and contextual science, defined and conditioned by principles and procedures that had evolved during the course of its development. Mathematics of course played an important and experiential role: "When...Ernst Mach approved of causal explanations, he meant constant relations between sensory appearances, relations that he believed could best be expressed in terms of mathematical functions." Stieglitz later claimed that experience was cumulative.
and predicated on relationships and sensory appearances. Experience, he also averred, was mathematical. 24

Secondly, for Mach mechanics was a symbolic science. By symbols Mach meant observable or potentially observable elements or sensations that could be generalized into simple theories. "When once we have reached the point where we are everywhere able to detect the same few simple elements, combining in the ordinary manner, then they appear to us as things that are familiar," Mach wrote, adding, "Economy of communication and of apprehension is of the very essence of science." 25 Stieglitz's photographic work from the late 1880s to 1910, which will be described in subsequent chapters, reveals a Machist "will to economy" which was continually honed and refined.

At the same time that Mach was formulating these ideas, the German physicist Heinrich Hertz was paralleling them with concepts of his own. Hertz worked under Hermann von Helmholtz at the University of Berlin from 1881 to 1883, thus he could have been known to Stieglitz. It was Hertz's contention that science did not explain facts, but provided rational models of patterns of experiences: scientific theory, then, "represented...symbol[s] of reality in such a way that 'their intellectually necessary consequences' would always be 'symbols of the necessary consequences in
nature of the objects represented.'

These were revolutionary ideas, milestones of a new positivistic and idealistic world view in science.

Nineteenth century positivism was a two-pronged and evolving philosophy. In the Comtean, mid-nineteenth century sense, it denoted "the attitude that the methods of experimental science should be applied in sociology, history, and literature....it merge[d] with 'naturalism,' 'realism,' and 'materialism,' and represente[d] simply the influence of science on culture...."

In another, more advanced sense, positivism claimed that those world views which had held sway since the days of, say, the scientific materialists, were themselves metaphysical since implied within them were certain unknowables (for example, the "fineness of matter" in materialism). As Stephen Brush has defined late nineteenth century positivist thought:

...the second [sense]--a critical attitude toward scientific theories which attempt to go beyond the immediate facts of experience--became more common after 1870, and indeed positivism provided one component of the reaction against materialism with the object of reforming and reformulating the foundations of science....A distrust for metaphysical speculation was accompanied by suspicion of "intellectualism"; the scientific and mechanical models constructed by the human mind were denounced as unreal, frivolous, misleading, and worthless.

Albeit radically anti-metaphysical, late nineteenth century positivism could be seen as an idealistic philosophy. Considered in a late nineteenth century sense,
this positivism (sometimes called early modern positivism\textsuperscript{90} implied total reliance upon perceptions. Perceptions, however, as Mach, Hertz, and others of like mind claimed, are mental events, that is "ideas."\textsuperscript{31} The late nineteenth century positivist ideal differs from early and mid-nineteenth century versions of idealism in that, for the former, the term "ideal" is set free. Released from the Hegelian and Kantian realm of the a priori (still important at this early stage, as noted below, for Alfred Stieglitz), the positivist and neo-romantic\textsuperscript{32} ideal is placed solely within the jurisdiction of sensation, the faculty which gives rise to ideas and submits them to experimental confirmation or refutation.

Ernst Mach was undoubtedly a key source for Stieglitz's receptiveness to these ideas. As shall be described in greater detail later, Stieglitz's greatest achievement was his evolution from "pictorialist" symbolism, a state of mind characterized by complex, introspectively derived associations, to "scientific" symbolism, an action-oriented framework for modeling and simplifying, thus understanding the events of the physical world.

The fall semester of 1882 is when Alfred Stieglitz, who was determined not to limit his educational opportunities to those available at the Polytechnic, made his initial contacts with professors of science at the University of Berlin.
It has been suggested that this was merely a transitional period (or worse, an impediment to his future career). For example, Lowe dismissed this crucial semester as one Alfred had to "slog through." But she also indicated that he developed a lasting and respectful relationship with certain of the preeminent professors whose lectures and laboratory instruction he audited. As she recounted:

Among the latter [professors] were the protean Hermann von Helmholtz, in physics; the pioneering physiologist Emil DuBois-Reymond, in anthropology; the founder of cellular pathology, Rudolf Virchow, who lectured on anthropology and archaeology and was also, as leader of the Liberal Party, a fierce opponent of Bismarck in the Reichstag; and the innovative chemist, August von Hofmann...an early researcher in coal-tar products and aniline dyes.34

Undoubtedly, Stieglitz's commitment to the discipline of experimental chemistry and to laboratory work as a way of life was a legacy from Hofmann, the father of experimentalism in Germany.

Hofmann was the reigning dean of chemistry in the 1880s, the acknowledged successor to Justus Liebig who had been the most important experimental chemist of the preceding generation. Like other aspiring chemists of his time, he was drawn to Liebig's laboratory at the University of Giessen, which from its inception in 1825 to 185235 became the leading institution designed to systematically train students to do independent chemical research under professional tutelage and guidance.
Liebig's was not the first teaching laboratory, but it was the first "nursery in which research chemists were bred in large numbers," and "his methods...made organic analysis a matter of routine."\(^{36}\) Central to Liebig's philosophy were two tenets: the authenticity of chemistry as a science dissociated from manual craft, and the concept of the chemist as both indefatigable researcher and teacher.\(^{37}\) In addition, he sought to replace older methods of classification with his own analytical methods: the isolation, analysis and synthesis of new compounds by means of simple and effective experimental techniques and reliable apparatus (such as condenser that bears his name).\(^{38}\) Liebig's students were enjoined first to learn analysis in order to plumb the grammatical rules of the language of phenomena, then to apply these rules and analytical procedures to determine the causes of chemical transformations. For Liebig and his disciples, chemistry was a "language in which the properties of bodies and their mutual reactions constitute parts of speech."\(^{39}\)

These directives were to prove seminal for Alfred Stieglitz. Analytic and synthetic reasoning would inform his seminal photograph *The Steerage*, and lead to his understanding of Cézanne's modernism. Furthermore, Stieglitz would identify his gallery as an experimental laboratory on a Liebig-inspired model: its simplest and
most effective technique was a staged series of exhibitions; its apparatuses were provocative works of art; and its journal was *Camera Work*.

Chosen to be Liebig's personal assistant, Hofmann obtained his doctorate in 1841 and quickly obtained prestigious academic positions at the University of Bonn and the Royal School of Mines in London, founded in 1845 by English students of Liebig as a center for agricultural, pharmaceutical, geological and industrial chemistry. He remained in London for twenty years, accepting the chair in chemistry at the University of Berlin in 1865.

Hofmann modeled his chemical laboratories after Liebig's in theory as well as in practice. Like his mentor, he sought to elevate chemistry to a preeminent humanistic position, claiming that the philosophical study of science (as opposed to the utilitarian) increased one's power of observation and thought. This attitude could be traced to *Wissenschaftideologie*, the notion, associated with German scientific institutions throughout the century, that the university was the repository of philosophic and scholarly pursuits. One of the major late nineteenth century interpreters of this attitude, Hofmann stressed the interrelated functions of research, pedagogy, and scholarship. And, most importantly for Stieglitz, he centered his instruction not in the lecture-theater but in the laboratory.
There, advanced students worked on individualized research problems while beginners charted themselves through quantitative and qualitative analysis. A charismatic presence and a "magnetic force," Hofmann circulated about the facility freely, stimulating students with his informal, individual, and practical assistance and galvanizing them with his enthusiasm. He did not treat his subject systematically, but taught it illustratively, giving each student an individualized course in creative thinking. Moreover, two important components of his laboratory were the chemical library, stocked with original memoirs, and the published "reports" of his proceedings. Under Stieglitz's direction, the Camera Club of New York was to operate under remarkably similar conditions, with similar facilities and its own journal of proceedings, Camera Notes.

As Alfred Stieglitz did not register as a student at the University of Berlin until October of 1886, it can be assumed that in 1882 he, like other students at the time, attended Hofmann's sessions on an informal basis, probably not working with him directly but listening to his lectures and absorbing the quality of his instruction. An endearing and eloquent teacher with an excellent command of the English language, Hofmann may have spoken to Stieglitz in his native tongue. This would have greatly pleased the impressionable and undoubtedly
homesick young man, further stimulating him to return to his chemical laboratory as a registered student at a later date. Because Hofmann understood that the relationship between pure and applied research was a symbiotic one, his technological optimism and practicality also would have impressed Stieglitz, whose father had a similar viewpoint.

Hofmann’s conviction that science should be taught in laboratories rather than in lecture halls undoubtedly helped form Stieglitz’s laboratory aesthetic, which he was to implement at the Camera Club, at “291,” and in Camera Work.

Not only was Hofmann a fruitful influence upon the Berlin-based Alfred Stieglitz, but his colleague Emil du Bois-Reymond also earned the young American’s respect. We do not have records of conversations or consultations between the two, save for Lowe’s terse, but extremely important account of a letter written by the latter in 1883 or 1884:

> If he had time in 1883-84 (which seems doubtful), Alfred may have enrolled in courses at the University unrelated to physics or chemistry. All that is known is that he retained enough interest in anthropology to write his former professor, DuBois-Reymond, for guidance in continuing his studies. The writers the latter suggested for “supplying your first wants” were Darwin, Vogt, Huxley, and Peschel.

Du Bois-Reymond, a versatile scientist, philosopher, and prolific lecturer, had been educated at the
universities of Berlin and Bonn in the late 1830s. His early work dealt with anatomical preparations, comparative anatomy, physiology, microscopy, and morphology. In 1854, after working for five years as an instructor of anatomy at the Berlin Academy of Art, du Bois-Reymond returned to the University of Berlin and began to concentrate exclusively upon physiology. As one historian has commented:

With his friends [Ernst] Brücke, [Carl] Ludwig and Helmholtz, he became a pioneer in the new physical orientation of the field, which sought to explain all processes in an organism by means of physical, molecular, and atomic mechanisms, without drawing upon hypothetical vital forces.\textsuperscript{45}

In 1882 and 1883, the years when Alfred Stieglitz would have been attending his lectures, du Bois-Reymond was rector of the University of Berlin. His fame at that time was in great part due to his breadth of scientific knowledge, to his discussions of problems of method and limitation, and to his studies in the history of science, which had been publicized in numerous papers and addresses dating from 1848. (These were published in 1912 in the two-volume \textit{Reden}.) Along with Hofmann, he exemplified a new generation of German professors of science who combined a philosophical outlook with a singular devotion to teaching, research, and publication. His method of instruction was to disseminate not only the state of knowledge on a subject, but the state of research in the
continuing development of the subject.\textsuperscript{46} The process of research and the researcher's life constituted a supreme truth for du Bois-Reymond, and undoubtedly affected the young student Alfred Stieglitz.\textsuperscript{47}

Knowing Stieglitz's early immersion in experimentalism as defined by Liebig (through Hofmann), Hofmann, and du Bois-Reymond, it is not difficult to surmise why he would have sought out Virchow and Helmholtz.

Virchow's lectures were extremely popular because he was the most prominent German physician of his day. He lectured on pathology, social medicine, public health, and anthropology. An avid archaeologist, in the mid-1880s Virchow helped develop and add to the collections of the Berlin Ethnological Museum, and he was instrumental in the erection of the Museum of German Folklore. His key theory, that life is merely the sum of chemical actions and the expression of cellular activity, would not have interested Stieglitz as much as the model of his life, which was dedicated to observation and experiment.\textsuperscript{48} Stieglitz's later interest in primitive art and his exhibitions of it in relation to modern art were in all probability also conditioned by his recollections of the example set by Virchow.

Helmholtz was a protean intellect, by far the most renowned scientist in Berlin, if not in all Germany.\textsuperscript{49} More is known about Alfred's experiences in Helmholtz's
classes than in Virchow's, although existing accounts are often more confusing than enlightening.

In Lowe's narrative, for example, Alfred's evaluation of Helmholtz's lectures is presented as entirely negative:

Helmholtz's discourse soon proved too abstruse, even though he explained gently to an Alfred wholly at sea that he was dealing only with the most "elementary" concepts. Quitting his lectures, Alfred admitted to learning not to waste the time of "XYZ" people on ABC questions.  

In Norman's account of the same lectures, Helmholtz is quoted as saying to Alfred, "Young man, I am discussing the ABC of physics." But here Alfred is said to have replied in a deferential manner, not haughtily, as Lowe would have us think: "My experience with Helmholtz played an important role in my life. It made me realize how often we waste the time of those concerned with the XYZ of a subject before we have even mastered the ABC." Writing on Stieglitz around the same time that Norman was interviewing him, Evelyn Howard stated:

And Alfred Stieglitz...has served not only art but also and no less science. Hermann von Helmholtz once wrote, when thermodynamics had just been born, "Our generation has continued to suffer from the thraldom of spiritualist metaphysics. The younger generation will doubtless have to protect itself against the thraldom of materialist metaphysics." We are now that younger generation, and Alfred Stieglitz has long been to us an unerring protector.  

It seems highly likely that Helmholtz, along with the other professors of science Lowe mentions, had a
positive influence upon her uncle, despite the difficulties Alfred seems to have experienced in understanding college physics.

Indeed, it is my contention that Helmholtz's philosophy of perception, which he no doubt discussed in his physics class, probably reinforced Stieglitz's developing intensity of sight. Perhaps Helmholtz's empiricist theory, a theory predicated upon individual capacity, tactility, and vision, is what literally propelled Stieglitz into his most significant independent course of study, photography. For one of Helmholtz's key ideas, propounded succinctly in his 1869 essay "The Aim and Progress of Physical Science," echoes Stieglitz's early photographic philosophy:

It follows, then, that this subtle and most admirable harmony existing between our sensations and the objects causing them is substantially and with but few doubtful exceptions, a conformity individually acquired, a result of experience, of training the recollection of former acts of a similar kind (italics mine). 53

And, in his 1868 essay "The Recent Progress of the Theory of Vision," Helmholtz even more succinctly stated what was to be for Stieglitz a lifelong goal: "the true scientific spirit [is] the spirit of patient and cheerful work." 54

Recalling these seminal ideas, Stieglitz wrote in the 1920s, "People constantly attempt to compare, to label, when what matters is to see what is before one, in
its own right." Furthermore, he stated, "And what, after all, can one tell others about something they have not experienced on their own? Is it possible to play music to the deaf, to show colors to the color-blind?"  

In the present context, it is important merely to note that Helmholtz's non-prescriptive, empiricist ideas would have reinforced the young Stieglitz's increasingly independent method of study. Attending Helmholtz's lectures was a matter of choice, not requirement (Alfred seems to have neglected his required courses at the Polytechnic, save for chemistry and mechanical engineering, to attend the University). Later Stieglitz was to state somewhat grandiously:

If I would do a particular thing in a particular way, I would be told it was against the rules. And I would feel that then in time the rules would have to be changed. For I did only what was natural to me. So if natural for me, it must be natural for others, and therefore, in time, the way I did it would have to be accepted.

**Directed and Independent Reading, c. 1883-86**

For Alfred Stieglitz, scientific thinking entailed the corroboration of idealism; it was, in essence, a philosophy of life. In his Berlin notebook of quotations, a notebook he entitled "Extracts, etc." and began in November 1884 (the period in which he was closest to Du Bois-Reymond), Alfred wrote (one directly after the other), "Talent is *form*, genius is *substance*," and
"Talent works, but genius creates." Likewise, the nineteenth century French novelist George Sand impressed Stieglitz with her similar definition of art. Citing her, in another notation he wrote, "Art is not the study of positive reality, but the free search for ideal truth." Many similar extracts, including one from Goethe's writings, were selected to corroborate Stieglitz's then passionately held view that science, art, and life were organic pursuits captured in a moving continuum of becoming, a continuum governed by a higher authority.

Although Alfred Stieglitz had demonstrated his capacity for independent reading and study first as a boy in his family's libraries then as a technical student in Berlin, it was in the latter locale that he deepened his understanding of idealism through German philosophy and strengthened his understanding of scientific theory through the writings of German and English materialists.

Idealistic literature had been a staple for Stieglitz for several years before he moved to Europe. Lowe's comment, that he "dipped into" works by Kant and Hegel in Berlin while assiduously avoiding philosophy classes, could have had more weight (and provided additional fuel to the "anti-intellectual" camp of Stieglitz scholars) had Stieglitz himself not indicated that he did study the subject in a formal manner.
Furthermore, Stieglitz's continuing preoccupation with polarities and binary oppositions, evidenced for example by his early interest in Goethe, can be traced to Kantian and Hegelian themes, as well.

According to Kant, the ideal or a priori element in all experience was the "understanding" (Verstand). Within the framework provided by understanding, habitual and communicable "experience," as Kant would define it, was defined as the synthesis of concept and intuition, "neither being open to self-consciousness without the assumption of the other." Kant's transcendental synthesis of apperception explained the conjunction of what is in the mind with what is in the world. "Without the concepts of the understanding, sense data would make no sense; and without the reception of such data, the concepts would never be deducible. This synthesis...must be supposed if the self-evident coherence of experience is to be explained."

Whereas Kant's Transcendental Deduction of Principles stipulated that knowledge was a faculty of the human mind working within its own speculative confines, Kant's disciple Friedrich Schelling, creator of the early nineteenth century idealist and romantic movement known as Naturphilosophie, claimed that knowledge was broader and more dynamic, that it involved nature as a source of design, order, and structure, as well.
"Nature" was defined by the Naturphilosophen in two polar, but ultimately fluid ways. Each definition of nature was not only necessary to the other, but potentially transferable into the other. A productive entity identical to the mind, nature was also a system of passive products. Speculative physics was to concern itself with the first aspect of nature, that is, nature as productivity; empirical physics was to experiment with the second.

That Alfred Stieglitz considered Camera Work a biological entity or natural product in a perpetual state of development, subject to an ultimate purpose but evolving towards that purpose through continual experimentation and through critical examinations of fluid yet polar concepts, suggests that a distant current of Naturphilosophie or at least Hegelian idealism undergirded his views.

The early nineteenth century philosopher George Wilhelm Friedrich Hegel flourished in the intellectual climate established by Schelling and Johann Gottlieb Fichte; his idealism presupposed the work of Kant as well as these post-Kantians' more dynamic interpretations of it. However, in Hegel's view the workings of the creative mind were even more inclusive than the Naturphilosophen would have one believe. Whereas Schelling found absolute nature a "vanishing point of all differences"
and a "blank identity" ultimately transcending human comprehension. Hegel defined absolute mind as a process that revealed itself historically through human genius and creativity. In essence,

Mind was not, in Hegel's view, a plurality of immaterial substances but a system of individuals actively developing their potentialities by embodying them in increasingly complex forms. A fundamental feature of mind...is freedom, and nothing that is partial or finite can be wholly free. The mind that is the only reality is therefore infinite. Furthermore, no one is free unless he is conscious of what he is doing, and infinite mind is therefore self-conscious mind.

The Hegelian cosmos was a circle of "infinite life," binding all of humanity into an all-encompassing process of self-development that revealed ultimate meanings at each stage of its actualization. Hegel devoted considerable effort to a definition of this actualization process, governed by a dialectical triad (thesis, antithesis, synthesis). Infinite mind or self-thinking thought (thesis), goes over into Nature or the material world (antithesis). In Absolute Spirit the mind "returns to itself" and achieves synthesis; "it manifests itself as what it essentially is." As described in the Encyklopädie der philosophischen Wissenschaften im Grundrisse (1817), human knowledge advanced in a corresponding manner, from "Logic," (thesis) through "Philosophy of Nature," (antithesis), and finally to "Philosophy of Mind" (synthesis).

As Hegel's system claimed to be a complete philoso-
phy of creative, unfolding life, the fields of science and art were significant components of its dialectic. The Philosophy of Nature was divided into three sections, mechanics, physics, and organic nature. The Philosophy of Mind comprised "Subjective Mind," "Objective Mind," and "Absolute Mind"; and within the latter, highest state was the ascending triad art, religion, and philosophy.

Whereas an analysis of these tripartite branching levels of his cosmos would lead far afield of the present topic, it should be stressed that in describing them Hegel's prime concern was to illuminate human creativity through philosophy, the highest manifestation of spirit. Although art occupied a higher level than physical science (a subset of the Philosophy of Nature) in the Hegelian dialectic, it was still, like physics, subject to philosophical clarification.

"Art," Hegel wrote, "has the task of presenting the Idea to immediate intuition in sensuous form, and not in the form of thought or pure spirituality. And the value and dignity of this presentation lie in the correspondence and unity of the two aspects of ideal content and its embodiment...." A perfect blend of the ideal and the real, art for Hegel was a sublime manifestation of genius. However, only philosophers were capable of stating the metaphysical significance of art because Reason "explicitly or reflectively apprehends," and
"philosophy has to exhibit systematically the self-realization of infinite Reason in and through the finite."69

In his later years Alfred Stieglitz, accepting the mantle of "American seer" bestowed upon him by admirers such as Dorothy Norman, Paul Rosenfeld, and Waldo Frank, appropriated aspects of Hegelian philosophy, for example stating about paintings he exhibited. "Often enough I have not at first understood myself what I have shown, but if the spirit of the work meant something to me, I have hung it in order to see for myself what living with it would disclose."70 These idealist concerns can be traced to his journals and notes, begun while he was a student in Berlin in the early 1880s.71

At the same time that he was studying idealist philosophy at the University of Berlin, Alfred Stieglitz was reading texts by contemporary scientists. He probably knew Mach's Science of Mechanics, Helmholtz's Popular Lectures on Scientific Subjects, and du Bois-Reymond's printed lectures, but evidently stimulated to broaden his field of knowledge, he asked du Bois-Reymond to recommend additional texts.

Notwithstanding the fact that du Bois-Reymond considered science a calling, in his own work he demanded "a contracted life-style...demanding enough room to do one's own research while side-stepping any cosmic preten-
sions."

72 He was a reductionist, dedicated to uncovering causal-mechanical relationships in nature without benefit of underlying forces or overlaying entities. 73 He was also a technological optimist. As he wrote in 1876, "[Man has become] a rational animal who travels with steam, writes with lightning, and paints with sunbeams." 74 The authors whom he recommended to Stieglitz—Karl Vogt, Charles Darwin, Oscar Peschel, and Thomas Huxley—were also, as one might expect, mechanistically, materialistically, and technologically inclined.

Karl Vogt’s materialism was much more encompassing and philosophical than Du Bois-Reymond’s; perhaps the latter, well aware of Stieglitz’s philosophical temperament and initial exposure to Hofmann’s philosophical experimentalism, recommended the former’s texts to him for that very reason.

Vogt, a chemist and physiologist educated in Liebig’s laboratory at Giessen, professed in true Liebig fashion that the goal of natural science was the investigation of matter. But he went further, along with Ludwig Büchner, Heinrich Czolbe, and Jacob Moleschott, making materialism the crux of his philosophy of science. 75

The early nineteenth century philosopher Ludwig Feuerbach, these materialists’ acknowledged mentor, stated that the act of sensation or Sinnlichkeit was sufficient for understanding; transcendence, as it was
abstract and had no roots in reality, was one-sided, shallow, and ultimately meaningless.78

For this reason, the scientific materialists dismissed Kantian theory and Naturphilosophie from their philosophy; such ideas were threatening because of their inherent subjectivity and idealism. Natural science for them had its own inalienable rights, subject to no authority save man's experience in the world. "It was the conviction that they were dealing with facts that made them think of themselves as realists over against the illusory philosophical systems of the immediate past." As the materialist Heinrich Czolbe explained, a modern empiricism must "explain the facts clearly."77

The fundamental message of the materialist text Kraft und Stoff (fifth edition, 1858), written by Büchner, the movement's spokesman, was that the laws of thought were identical to the mechanical laws of external nature. Just as Stieglitz was to reinforce an important current of photographic thought in the mid-1890s by suggesting that sensibility might be merged with physical form, Büchner indicated that this philosophy was actually the province of the sciences. He stated that:

...thought was the sum of the individual effects or properties of matter, produced in a fashion analogous to the steam engine. It was the resultant action of a peculiar combination of force-endowed materials....the total effect of the machine. Force was an inseparable property of matter, while the imponderables (heat, light, electricity, etc.) were
no more or less than alterations (Veränderungen) in the aggregate state of matter.\textsuperscript{78}

Matter, according to Büchner, was classifiable according to levels of complexity. At a certain level of "finessness" (Feinheit), matter actually produced consciousness. The task of the materialist, Büchner averred, was to get down to and probe this level of matter; once this ultimate physical problem was solved, all metaphysical problems would be solved.\textsuperscript{79}

The materialists were dogged individualists. No sanctioned philosophical authorities could be brooked in their systematic, fact-finding mission, whose goal ultimately was to dissect the world.

Vogt’s book \textit{Bilder aus dem Thierleben} of 1852, which Stieglitz may have read, was written not only to popularize information of a scientific nature, but to proselytize its author’s anti-authoritarian ideology. For Vogt, the individual scientist carried within him the revolutionary potential of unraveling the mysteries of the material universe. A pioneer and a doer, Vogt relied on continual observation, reflection, interpretation, and revision based upon further observation in order to advance the state of his scientific knowledge. He was a dynamist, unafraid to jettison ideas proved retardaire by technological advances in his own and other disciplines. Furthermore, he was substantially a Darwinian
evolutionist, committed to development according to natural forces rather than according to the will of a divine Being. Vogt's philosophy of science, like Liebig's, Hofmann's, and Stieglitz's, entailed untrammeled creative thinking, problem solving, experiment, and synthesis.

Darwin, an important influence upon Du Bois-Reymond because of his mechanistic biology, interested the German physicist equally because of his revolutionary repeal of teleology. For the Darwinist, having put the matter of final causes definitively aside, was free to consider science as the study of operations rather than explanations. Although Stieglitz would not so promptly dismiss teleology (his concept of evolution was initially teleological; Darwinism did not enter his circle until about 1911, when the instrumentalist critic Agnes Ernst Meyer wrote for Camera Work), he would advocate experimental freedom and not demand that his writers adhere to speculative schemes.

The Leipzig anthropologist Peschel, also recommended by du Bois-Reymond to Stieglitz, combined both Darwinian and non-Darwinian views of evolution in his The Races of Man, and Their Geographical Distribution of 1874. This text, which must have been in Du Bois-Reymond's library, organized and summarized the key anthropological issues of Peschel's day, including craniology, the
evolution and structure of speech, phases of sociological and biological development, and racial types. Marius de Zayas, a critic and amateur anthropologist in the Stieg- litz circle, wrote several essays on these subjects in 1913. Having probably studied this material himself, Stieglitz seems to have felt that de Zayas’s ideas were well worth publicizing; he published five of his friend’s articles in Camera Work and issued a sixth in pamphlet form.81

Finally, the philosophy of the English physiologist Thomas Huxley presents a special case. Huxley’s materialism was not only linked to, but dependent upon du Bois-Reymond’s.82 Indeed, both scientists were Darwinians, both were also reductionists and materialists. However, like Stieglitz, Huxley did not completely disavow teleology.

Huxley’s ideas were heavily influenced by those of Karl Ernst von Baer, who claimed that "the Type of organization determines the manner of development."83 Huxley’s notion of archetype, however, was not related to or dependent upon Naturphilosophie or related vitalist trends. "To him, the word meant 'the conception of a form embodying the most general propositions that can be affirmed' about the organisms under consideration."84 Moreover, it has been noted that "Huxley investigate[d] the relationships between different types, a procedure
which ever since has been virtually taken for granted."\textsuperscript{85}

If Stieglitz indeed read papers by Huxley, he would have derived a significant early textual foundation for his notion of measured, equilibrated formal relationships, which would be exemplified in his photographs of 1893-96 and 1907-10 and in his rationale for \textit{Camera Work}.

Huxley’s general scientific texts, such as \textit{Lessons in Elementary Physiology} (1866, with thirty subsequent editions) or \textit{Physiography: an Introduction to the Study of Nature} (1877), could have corroborated another facet of Stieglitz’s emerging philosophy. This is because they are predicated on the view that science is an inclusive, expansive, and spiritually fulfilling way of life; in short, it is a discipline to be learned by living it.\textsuperscript{86} It comes as no surprise to learn that Huxley taught natural history at the Government School of Mines in London at the same time that Hofmann, whose philosophy of life was similar, was teaching chemistry there.

For Huxley then, as well as for Hofmann, Helmholtz, and Stieglitz, an empirical conception of research (keyed to perceptual intensity) was an essential component of the scientific life. Just as Huxley and particularly Helmholtz extolled the scope, power, and universally applicable qualities of human sensation, Stieglitz, writing at the end of 1884, was to quote the French naturalist novelists Emile Erckmann and Alexandre Chatri-
an "to the effect that a person should report only what he himself has seen; that in this way the world would be able to learn truth."87

It has also been pointed out that, in his later years, Stieglitz was to make perception the equivalent of the totality of experience, and that this philosophy intimated his indebtedness to "pragmatism and empiricism."88 Although he did not quote Mach, Hofmann, Virchow, Helmholtz, du Bois-Reymond or Huxley in his Extracts, it is undeniable that certain of Stieglitz's ideas paralleled theirs and found expression in comments applicable to their philosophies of science.

Probably the strongest case for his philosophic parallelism with them is found in the mutual passion shared by all of them for the laboratory. For example, Helmholtz compared the scientist's laboratory to a battlefield, to a master craftsman's shop, and to the studio of a musician or an artist.89 For Huxley, the laboratory was a battlefield but also a sanctuary, "the forecourt of the temple of philosophy; and whoso has not offered sacrifices and undergone purification there, has little chance of admission into the sanctuary."90 In Mach's laboratory, experimentation was a process in which both the events observed and the observer played the important roles.91 For Stieglitz and his associates, the New York Camera Club, then the laboratory and gallery
"291" and its journal Camera Work would encompass all of these notions.⁹²

In general, the decade of the 1880s was one of intense discovery and experimentation. It was a time of confidence and power, but it was also a time of unrest and major revamping of scientific philosophies. The Cartesian duality of matter and mind was eroding; a new scientific world view was postulating mind and matter as aspects of the theories created by great experimental minds. Alfred Stieglitz was well aware of the import of the changes that were going on around him in the lecture halls and laboratories of Berlin. He knew or knew of many of the individuals who were responsible for these changes.

Far from being just a period of pleasant diversions in cafes, billiard halls and theater and music halls,⁹³ the 1880s should be recognized as philosophically crucial years for Stieglitz, years that witnessed the emergence of his singular scientific aesthetic. That aesthetic had its origin in various strands of European and specifically German idealism, then was expanded through materialism and Hofmann’s charismatic and analytic experimentalism.

Undeniably, as a student Stieglitz had at least a nascent vision that was complementary to those of the advanced minds of his day. This vision would come to mature realization in his photography.
NOTES


2. A photograph of the Edward Stieglitz New York residence shows a portion of wallpaper whose pattern may have been influenced by Arts and Crafts style (Lowe, p. 46). I have not been able to locate a source for the pattern in the designs of William Morris or his colleagues, however.


4. Ibid.

5. For example, Goethe postulated that plant growth involved the dynamic interplay of two opposing forces, the vertical and the spiral—-the vertical influence governed outwardly evident physical growth; the spiral, the internal solidity of the organism. Both for Goethe and for Stieglitz, opposing forces were necessary and mutually beneficial (Peter Salm, The Poem as Plant [Cleveland and London: The Press of Case Western Reserve University, 1971], p. 27).

6. Knight, p. 34.


9. "Alfred made it a practice in his youthful letters to describe events of a day, hour by hour, in meticulous fashion, noting the exact moments at which he wrote. He recorded the most subtle variations in weather and atmospheric conditions. His sensitive reactions to
almost imperceptible shifts of wind, rain and light were soon to be reflected in his photographs" (Dorothy Norman, Alfred Stieglitz: An American Seer (New York: Random House, 1960), p. 20).


13. For example, in Kent, pp. 27-30.

14. Stieglitz to Adolph Werner, 15 October 1881, Collection of American Literature, Beineke Rare Book and Manuscript Library, Yale University, outline, TMs, by S. Davidson Lowe, Madison, Connecticut. (Hereafter referred to as YCAL.)

15. Haines, p. 15.

16. One such instance was Stieglitz’s determination to listen to the noise of a scissors grinder ("Thoroughly Unprepared," pp. 256-58).

17. Stieglitz to Adolph Werner, 13 November 1881, YCAL, outline, TMs, by Lowe.


20. Lowe, p. 74. This is also an embroidered statement, meant to engender his followers’ awe in his later years. Stieglitz was actually photographing much earlier while living with the Bauers. He wrote Werner about a spring (1882) sojourn in the Black Forest with a painter friend and reported that the Bauers found his vacation photographs “a little too warm” in tone (Stieglitz to Werner, 18 April 1882, TMs [outline], Lowe).


26. Welsh, pp. 139-40.

27. Brush, p. 92.


32. The term "neoromanticism" is Stephen Brush's. Writing in general of what he termed the reaction against materialism, he stated:

The cultural tendencies at the end of the nineteenth century...contain such divergent elements as spiritualism, symbolism, aestheticism, impressionism, political reaction and monarchism, ultranationalism, and neo-Catholicism; it is perhaps a strain on one's credulity to interpret them as part of the same movement as neo-Kantian idealism, empiriocriticism, energetics, axiomatic mathematics, neovitalism and degenerationism in biology, *Gestalt* psychology, and introspection (Brush, p. 26).

33. Lowe, p. 73. In a letter to Werner Alfred stated that he was bored with certain professors (he didn't mention whom) because they "lectured miserably" (Stieglinz to Werner, undated, YCAL, outline, TMs, by Lowe).

34. Ibid., p. 73.
35. After 1850, other laboratories were founded on the Giessen model, such as Bunsen's at Heidelberg and Hofmann's at the Royal School of Mines in London.

36. Knight, p. 60.

37. In Germany during the eighteenth century, science was taught as a utilitarian pursuit. In the early nineteenth century, reformers sought to dissociate utilitarian from philosophic studies and to raise the sciences to the level and reach of philosophy (Turner, "Growth of Professorial Research in Prussia," pp. 137-82).


40. Bentley, p. 169.


42. Ibid., p. 175.


44. Lowe, p. 82.


"Virchow, Rudolf Carl," by Guenter B. Risse, p. 41.

49. By 1887 Helmholtz was the most famous scientist in Germany, as he was appointed president of the newly founded Physikalisch-technische Reichsanstalt for research in the exact sciences and precision technology.

50. Lowe, p. 73.

51. Norman, American Seer, p. 25.

52. Howard, p. 205.


55. Norman, American Seer, pp. 174, 175.

56. Lowe, pp. 72-73.


58. Alfred Stieglitz, "Extracts, Etc.," 1884-90 (?), autograph booklet, YCAL. The authors of the quotes are (?) Gutzkow and (Robert?) Schumann, respectively.

59. Ibid.

60. Lowe, p. 77.


64. The quotation reads as follows:

In so far as we regard the totality of objects not merely as a product, but at the same time necessarily
as productive, it rises into nature for us, and this identity of product and productivity, and this alone, is implied even in the ordinary use of language by the idea of nature. Nature as mere product (natura naturata) we call nature as object (with this alone empiricism deals). Nature as productivity (natura naturans) we call nature as subject (and with this alone all theory deals) (Schelling, Werke, III:283, quoted in Gower, p. 316).

65. Timothy Lenoir has discussed the persistence of teleological thinking in the Introduction to his text The Strategy of Life. In Lenoir’s view, the books published by certain scientists who were Stieglitz’s contemporaries, such as E. S. Russell and D’Arcy Thompson, maintain both a theoretical standpoint in line with that of early and mid-nineteenth century teleology and a concern for quantitative, experimental science (Lenoir, pp. 6-8). On the relation of D’Arcy Thompson’s On Growth and Form to the Stieglitz circle, see Sherrye Cohn, “Arthur Dove and the Organic Analogy,” pp. 85-89.


68. Copleston, 7:170, 172.

69. Ibid., pp. 231, 172.


71. At this time Stieglitz might also have been aware of late nineteenth century Hegelians Wilhelm Dilthey, appointed to Hegel’s chair in philosophy at the University of Berlin in 1882, and Eduard von Hartmann, author of an influential text on genius and creativity.


73. Gregory, p. 149.

According to Frederick Gregory, who has carefully distinguished the reductionist viewpoint from the materi-
Both the scientific materialists and the reductionists shared the conviction that the task of science was to uncover the causal-mechanical relationships in nature, and both became so impressed with the success of this approach that, as [Theodore] Merz put it, the spiritual came to be regarded as an epiphenomenon or even a fiction. The difference between the two groups was that the reductionists remained largely agnostic vis-à-vis the spiritual, while the scientific materialists [including Justus Liebig, Karl Vogt and Ludwig Büchner] rarely hesitated to proclaim that the spiritual was wholly accountable in terms of the material (Gregory, p. 149).

For Stieglitz, scientific thinking entailed the collaboration of idealism and romanticism; he could not abide the reduction of science to non-psychical factors. This is not to say that he would not have admired Du Bois-Reymond's tenacity, task-orientedness and dedication to learning for its own sake.


75. Liebig was an analytical chemist, but he maintained philosophical ties with vitalism, ties that may have been distantly important for Stieglitz.

76. Gregory, p. 3.

77. Czolbe, quoted in Gregory, p. 152.


81. Marius de Zayas was Stieglitz's most scientifically oriented critic. His ideas warrant detailed and contextual treatment, thus can only be cited briefly in
the penultimate chapter of this Stieglitz centered study.

82. Knight, p. 68.

83. Karl von Baer, Über die Entwickelungsgeschichte der Thiere (Königsberg, 1828), pp. vii, xxii, quoted in Lenoir, p. 84.


86. Huxley defined this view as follows:

...the great benefit which a scientific education bestows, whether as training or as knowledge, is dependent upon the extent to which the mind of the student is brought into immediate contact with facts—upon the degree to which he learns the habit of appealing directly to Nature, and of acquiring through his senses concrete images of those properties of things, which are, and always will be, but approximatively expressed in human language...the great business of the scientific teacher is, to imprint the fundamental, irrefragable facts of his science, not only by words upon the mind, but by sensible impressions upon the eye, and ear, and touch of the student (Thomas Huxley, Collected Essays [London: Macmillan, 1893-94], VIII:219, quoted in Bibby, pp. 76-77. Italics mine).

87. Stieglitz, "Extracts." Erckmann and Chatrian, who wrote under the co-pseudonym Erckmann-Chatrian, were popular mid-nineteenth century writers, known for romans nationaux (nationalistic novels) about the aftermath of the 1789 revolution. According to critics, these novels were carefully researched and "hallucinating" in their description of the daily lives of their protagonists. Moreover, like documentary photographs, they provide glimpses or "moments" of a bygone era. The works by Erckmann-Chatrian include Madame Thérèse (1863), Histoire d'un homme du peuple (1865) and Histoire d'un paysan (1867) (Gérard Milhaud, "L'Histoire dans Erckmann-Chatrian," in Europe 549-50 [January-February 1975]:58, 59).

88. Haines, p. 91.

89. Helmholtz, "Aim and Progress of Physical


92. Stieglitz's claim that the philosopher and genius were men of trenchant imagination and action may have had an additional source in the idealist and experimental writings of Wilhelm Wundt. The German leader of experimental psychology, Wundt was instrumental in directing American turn-of-the-century psychology to functional and operationalist concerns. Wundt, whose research was well-known in Germany during the 1880s, may have further fueled Stieglitz's interest in and dedication to laboratory science. On Wundt's possible influence on the Stieglitz circle, see Chapter Eight.

93. Rosenfeld, p. 66.
CHAPTER THREE

ALFRED STIEGLITZ'S EDUCATION 1883-90: PHOTOGRAPHY, CHEMISTRY, AND EXPERIMENTAL PHILOSOPHY

Alfred Stieglitz's decision to change his field of study from engineering to chemistry (his brother Julius's chosen field), and his educational background in photography have been discussed at length elsewhere. These discussions, however, have obscured the nature of Stieglitz's development as a scientist in order to situate him as an artist.

It is well known that during the early 1880s Stieglitz learned photography at the Charlottenburg Polytechnic under Professor Hermann Wilhelm Vogel and that he was practicing amateur artistic photography by the latter years of that decade. It is also known that he was highly influenced by the photographs and theories of Peter Henry Emerson, the originator of naturalistic genre photography.

While it is true that the mid-1880s were important years of aesthetic experimentation for Stieglitz, and that the work he completed during his European travels earned him international renown in the art photography world, this period was perhaps even more clearly defined by his experimental scientific education and focus. His years with Vogel, therefore, deserve closer, more circum-
spect attention than they have been given in the past.
Emerson's prescriptive approaches to art photography,
which Stieglitz ignored, need to be disentangled from his
experimental contributions, which Stieglitz lauded.
Furthermore, as the influences exerted by other photogra-
phers and scientists in Stieglitz's personal and profes-
sional milieu were experimental both in practice and
theory, it is crucial to integrate them into the texture
of these early years.

Hermann Vogel had made important discoveries in
photographic chemistry well before Stieglitz came to
study with him. Perhaps Stieglitz knew of Vogel's work
in advance of registering for his course, because two of
the latter's manuals had been translated into English and
republished in the United States in the mid-1870s.2

In 1873, Vogel had discovered that certain chemi-
cals, called "optical sensitizers" or "color
sensitizers," could sensitize collodion silver bromide
plates to the green of the spectrum. This possibility
was unknown until that year. It was also revolutionary,
according to Vogel's colleague Josef Maria Eder, who
noted that:

From Vogel's discoveries developed the new color-
sensitive processes which permit photography with
correct tone values and called forth an essential
change in the photography of colored objects. This
was fundamentally important not only for correct-
color photography but also for three-color photogra-
phy.3
Based on Vogel's and Eder's work in color sensitizing, the first "orthochromatic" plates (sensitive to all colors except red) were invented in 1884. In his book *The History of Photography*, Eder also recounted the fact that Vogel demonstrated the effectiveness of his "aziline" dyes (actually a mixture of quinoline red with cyanine) by photographing paintings in Eder's own Vienna laboratory. The reproductions were so true that the Vienna Photographic Society pressed Vogel to reveal the composition of his "aziline"; Vogel agreed, and by 1886 his panchromatic emulsion (incorporating optical sensitivity throughout the visible spectrum) was known in Berlin, Vienna, and the United States.4

It was during these fruitful and intense years of Vogel's career that Stieglitz became his student. Interestingly, in conversations with Dorothy Norman, Stieglitz later attempted to mythologize his relationship with Vogel so that it would appear that he himself, not his professor, was the more astute investigator. In this instance, Stieglitz's late accounts, doctored evidently to foster his myth, must be qualified by the fact that Vogel was not one to accept compromise. Furthermore, Stieglitz was an uncompromising student in the Vogel tradition, a tradition which he desired not to overthrow, but to perpetuate.

Stieglitz reported to Norman that while attending
his regular engineering courses in 1883, he had engaged in photography as a sort of pastime, setting up a portable darkroom in his apartment where he worked out problems of exposure and development on his own. He decided to register for Vogel's course later that year after viewing some proofs taken by a fellow engineering student and being informed that they had been made for Vogel's course, part of the engineering curriculum. "I rushed over to the office of the registrar and asked whether I could attend the course," Stieglitz told Norman.5

Whether or not this story was true, Stieglitz would eventually have taken the photography prerequisite as a matter of course. Furthermore, he probably already knew Vogel's competence and reputation, since his book reviewing the preceding four years in photochemistry had just been revised and translated into English.6 Stieglitz, however, wanted it to be known that he saw his future in photography after having a personal revelation. Discussing his performance in the class itself, Stieglitz further implied that Vogel was amazed by his student's perseverance and solution of problems that the teacher himself had not dared to essay.7

While it is perhaps true that Vogel's own work was preoccupying him at this time, it is manifestly not true that he had no great expectations for his students. Two
examples make this clear.

Stieglitz recalled a particular problem as follows:

In time Professor Vogel took me into a studio and taught me how to focus, manipulate curtains and control lighting. It seemed there were curtains everywhere. He said to photograph a plaster cast of the head of the Apollo Belvādere, which was draped with a black focusing cloth. I began a series of experiments lasting for weeks. No matter how often I photographed that damned plaster cast, I seemed never to make a perfect negative.

"What are you doing?" Dr. Vogel asked...."My God, man...what you are aiming at is impossible to achieve! You are searching for what might be called perpetual motion in photography. Don't you realize that, if you wish to photograph, there must be a certain compromise?" Such a concept seemed reprehensible.8

Vogel seems to have had a somewhat different view of the problem than Stieglitz remembered, however. In his Handbook of the Practice and Art of Photography (1875), he stated:

For training the eye in this respect, I would recommend the photographer to practice on plaster of Paris busts. Such busts should be placed in the atelier on the same spot where the sitters are placed. All the light should be excluded by closing all the curtains, and now by admitting the light first from one direction, then from another, now from above, and next sideways, the effect on the face should be carefully watched.

The variations are not only surprising, but entertaining and instructive, and whoever will take the trouble to photograph them, and make a short memorandum of the mode of illumination, can make for himself an album of studies that will materially assist him in selecting the proper mode of illumination for the living model.9

In Vogel's empiricist view, the student's main task
was to rigorously train his eye by performing and docu-
menting numerous experiments. Problems were presented
not simply to be solved analytically, but to be ap-
proached creatively and synthetically from various
angles.

If the Vogel student was aiming to become an
engineer, as Stieglitz then was, the most he could learn
through photography was problem solving, exactitude and
precision of vision. Keenness of thought and sight,
coupled with the requisite technical knowledge, would be
sufficient to serve the engineering student to obtain
faithful photographic copies of existing machinery and to
document his plans and working drawings for new construc-
tions.

According to Vogel, accident and revelation,
Stieglitz’s later stated premises, had parts to play in
the development of science, "but other [important discov-
eries] required years of thoughtful study and experiment
before they could take their place amongst the inven-
tions. Photography belongs to the latter class.”¹⁰

The second example documenting Vogel’s standards
comes from Stieglitz’s own hand. In his first published
article, written for the February 25, 1887 issue of the
London Amateur Photographer, the twenty-three-year-old
emergent talent was asked to comment on amateur photogra-
phy in Germany.¹¹ The entire article is devoted to a
detailed description of Vogel's laboratory, a "model" institution dedicated to "giving the scientific student of every branch such insight into theoretical and practical photography as might prove of value and assistance in his future studies."  

Stieglitz was as intent on elaborating the technological innovations (such as electric lighting) Vogel had initiated as praising Vogel's encompassing knowledge of both photochemistry and philosophy. Had he been allocated more space in the magazine (this article occupied only one column), he might have elaborated on Vogel's demand for fidelity to nature and for individual expression.  

Nevertheless, Stieglitz did stress Vogel's open approach to research and dissemination of findings. In this brief account by a star student, Vogel's photochemistry laboratory at the Charlottenburg Polytechnic is revealed to have been modeled, as was Stieglitz's first chemistry professor A. W. Hofmann's, on Justus Liebig's.

During his formative, experimental years, Alfred Stieglitz considered himself a participant in the important photochemical discoveries and ideas issuing from the Vogel laboratory. By the nineteen thirties and forties, however, Stieglitz did not want his devoted followers to think that he had ever believed himself to be a "mere" technician.

Stieglitz recounted to Norman how he had railed
when a group of Berlin-based realist painters, who when told by Vogel that his student's prints were noteworthy, had retorted they were sensational, while implying that had Stieglitz been a painter instead of a photographer, his compositions would be considered art. Vogel evidently saw that Stieglitz's future might lie not in engineering, but in the reproduction of paintings—a worthy field since Vogel himself used art reproductions to demonstrate and publicize technical innovations. Stieglitz, in an effort to perpetuate the myth of his artistry, claimed to have told these artists, "I never have had any desire to make a photograph look like anything I have seen painted."15

Contradicting this is the fact that in the late 1890s Stieglitz experimented with the reproduction of old master portrait paintings. In the previous decade he had worked on photo-engraving processes at the University of Berlin. Furthermore, Stieglitz's exhibition prints of the late 1880s, for example Sun Rays--Paula--Berlin of 1889 (Fig. 3), are brilliant, mechanically produced "demonstrations" of the same "high contrast" principles that Berlin artists and critics were promoting in their paintings (Fig. 4), and that Vogel had been assigning to his students.16

Stimulated and highly influenced by Vogel's teaching, Stieglitz must have considered himself a contributor to
the technological revolution in the late nineteenth
century. Under no other premise could he have said,
supposedly to those same Berlin artists:

I "saw" more clearly the future than [they]
did--something fundamental which was in the
machine--and that the machine had come to stay. My
camera and lens in a way could be looked upon as a
machine, but without the machine and myself being
one, that which these artists so admired would not
exist.\textsuperscript{17}

Also, in an unpublished manuscript of 1899, Stieglitz
wrote:

In the great universe of progress there is scarce a
calling, research, science, or art to which photogra-
phy has not played the part of a slave, hand-maid, or
helping friend till at last, having served well her
apprenticeship, she has come to her own, and in the
strength of maturity taken her place among her sister
arts.\textsuperscript{18}

There is more than an echo of Vogel's teaching in
these words. About his relationship with Vogel Stieglitz
would later state, complete with melodramatic gloss:

I looked upon that man [Vogel] as a perfect god, and
when I saw some of the things he had done I said to
him: "Teach me this and I will be the happiest man
on earth." Soon I knew all Vogel had to show me, and
instead of being the happiest I was the most misera-
ble man on earth.\textsuperscript{19}

Thus, given Alfred Stieglitz's wholehearted accept-
ance of the chemical foundations and technological
ramifications of photography, (qualified by the fact that
he was to find his own niche in the amateur photographic
world), his independent efforts to apply photography to
the documentation of machine design,\textsuperscript{20}, and his commit-
ment—demonstrated in works such as Sun Rays—Paula—Berlin—to the precision-oriented, direct illumination aesthetic described by his teacher, it is highly likely that his view of art had been convincingly shaped by Hermann Vogel's view of photographic science. That Stieglitz would evaluate his own and others' photographs in terms of tonal relationships suggested by nature yet brought out by the particular artist's judgment further shows that he saw himself as Vogel's disciple.21

Nevertheless, there is validity to Stieglitz's comment on the limitations of Vogel's teaching. The latter's aesthetics were heavily influenced by the prescriptive theories of the British photographer H. P. Robinson, and Vogel's technological aesthetic manifested similarities with that of British evolutionist Herbert Spencer.

For Vogel the productions of the artist photographer were valid because they delineated general types of beauty, in mythical and historical guise. Citing H. P. Robinson, he claimed that "true pictures" followed the rule of a prominent subject and subordinate accessories.22 According to H. P. Robinson, the preeminent theorist of art photography in the 1870s, photography, like painting, was less a matter of innovation than harmony. If photographers would but elevate their
principal objects, subordinate other objects, harmonize by means of repose, unity, repetition, and variety, and rearrange nature should proper general truths be better served thereby, a sublime, beautiful, or picturesque story would be well told.23

Spencer's view of intelligence posited it as a well-lubricated mechanism whose components functioned within a continually evolving dialogue of internal and external relations, resulting in progressive (more complex) adjustments of these relations. The scientific component of intelligence formed an internal system, while the artistic faculty appears to have been considered by Spencer an external system complementary to the scientific. Spencer called scientific faculties directive, perceptual, and cognitive; artistic faculties he stipulated were executive, muscular, and operative.24. In Vogel's view photography (the Spencerian executive entity) was the handmaid of science (the Spencerian directive entity); thus it performed a useful, albeit not primarily creative function in society.

These a priori aesthetic views were not shared by Stieglitz. The first photograph which gained him entrance into the art photography circuit, A Good Joke of 1887, was praised because it was deemed atypical and specifically, "spontaneous."25 As discussed in later chapters of this study, Stieglitz made his mark as a champion of
independence in the domain of fine art photography.

As Alfred Stieglitz entered the amateur photography circuit and began submitting his work to various European competitions, Peter Henry Emerson became his second aesthetic and scientific mentor.

Emerson, an American-born British resident and descendant of Ralph Waldo Emerson, earned a substantial reputation as a surgeon and amateur photographer. He may be credited as the discoverer of the young American talent: in his capacity as juror of several international competitions, he awarded Stieglitz several prizes (including a first prize award for A Good Joke), and in his capacity as British correspondent to American Amateur Photographer he commissioned Stieglitz to write exhibition reviews. Moreover, Emerson asked Stieglitz to translate his 1889 book Naturalistic Photography into German, a task which netted Stieglitz very little remuneration and very many delays and problems with Emerson’s publisher. Someone with little interest in Emerson’s ideas would have given up such an undertaking, but Stieglitz completed the translation.

Later, Stieglitz quoted Emerson at length in one of his articles on pictorial photography in order to reinforce his convictions that photography was hand work, eye work, and head work, and that poetry, literature, photography, and painting were mutually responsive and corre-
sponding art forms. Therefore, it is important both to situate Stieglitz's early aesthetics in a dialogue with Emerson's and to stipulate the crucial areas wherein they differed.

The brilliant young Emerson, by his twenty-fifth year Assistant House Physician at King's College, London, maintained an avid interest in art, specifically French Naturalism. Naturalism, according to one of its major spokesmen Edmond Duranty, established a new anti-academic plane in art. Henceforth, life as lived was to be the sole first principle. "The idea, the very first idea," Duranty wrote in his commentary on the second Impressionist group show in Paris, "was to eliminate the partition separating the artist's studio from everyday life," and by implication, to table all pro-studio theory, which would certainly include Robinson's. Emerson's comment, "The point is, what you have to say and how to say it," derives from this experiential orientation and was quoted by Alfred Stieglitz.

As would be expected from a trained and indefatigable chemist, Emerson's experiential ideas were scientifically as well as aesthetically based. He advocated creative problem solving and independently posed research. The "big physical fact" in Emerson's view of photography was nature, which the photographic researcher studied by isolating aspects for detailed examination,
just as the chemist isolated and analyzed compounds.\textsuperscript{30} Photographic apparatus were to be the simplest and strongest available, Emerson stated, following the tenets established by Liebig and his followers.\textsuperscript{31}

Perhaps the most significant contribution Emerson made to photographic theory was his study of perception, specifically the links he forged in \textit{Naturalistic Photography} between nature-based photography and the empirism\textsuperscript{32} of Hermann von Helmholtz. Alfred Stieglitz, who not only read Helmholtz but attended the physicist's lectures, was to apply these ideas to his own naturalistic works of the 1890s.

In his perceptual studies, Helmholtz advocated a theory of relativity. Following a doctrine initiated by the Greek atomists and reevaluated by Galileo, Descartes and Locke, and moving in the same direction as had his physiology professor Johannes Müller, Helmholtz claimed that the nature of sensation is relative to the particular organ of sense stimulated. Helmholtz's general theory of perception defined sensations not as aggregates of things, but as effects relative to and defined by the perceiver. His idea of mental experimentation was one incorporating tactility and volition; it was not merely a concept but an active process, making full use of the perceiver's senses.

It was Emerson's conviction that photography was a
severely taxing physiological and mental process, and his advocacy of artistic "energy" bespeaks his understanding of Helmholtz's principles.33 But Emerson went further, quoting Helmholtz at length in order to substantiate his claim that the accurate photographic rendition of any scene was that observed not only by the active human eye, but by the eye subjected to various degrees of atmospheric brilliance. In other words, he claimed, luminous intensities in a print should vary as the ambient light varies.34

Emerson's citations of Helmholtz all came from the German physicist's published popular lecture series of 1871-73, entitled "On the Relation of Optics to Painting." In these talks Helmholtz discussed "quantitative relations between luminous intensities," for example, sunlight, moonlight, daylit picture galleries, and oil pigments. He noted that painters' pigments were far too limited in range for them to imitate extreme conditions properly, for example brilliant desert sunlight or subdued forest moonlight.

Unlike academically-minded aestheticians of his generation, however, Helmholtz did not advise painters to avoid these conditions. He advocated strict attention to and imitation of the effects of perceiving them continually and exhaustively. An artist should attempt a study of figures in the brightly lit desert, for example, but
he should be aware that if he were painting the scene on
the spot, his eyes would become fatigued in a certain
way. He should reproduce not what, through previous
academic experience, he would think the scene should look
like, but how it might effect his eyes if he were to
stare at it for some time. Helmholtz described this
perceptual condition as follows:

The eye of the traveller in the desert, who is
looking at the caravan, has been dulled to the last
degree by the dazzling sunshine; .... The condition of
one who is looking at a picture differs ... by posses-
sing a certain mean degree of sensitiveness. Accord-
ingly, the painter must endeavour to produce by his
colours, on the moderately sensitive eye of the
spectator, the same impression as that which the
desert ... produces on the deadened ... eye of the
observer .... [He must] make all objects almost equally
bright, and thus produce with ... moderately bright
colours the impression which the sun's glow makes
upon the dazzled eye of the observer.35

Helmholtz followed this vivid description of
bedazzled vision by a passage on what he called moonlight
vision. The eye adapted to moonlight or similar feeble
illumination perceives distortion in objects, just as the
bedazzled eye does. However, as one might expect,
objects seen in dim light appear defined by and gradated
in a limited number of dark tones, and "the shades
towards the black are made very marked, so that the
darker objects are almost lost in an impermeable dark-
ness."36 Following Helmholtz's line of reasoning,
Emerson enjoined photographers to pay attention to
relative tones in shadows and half-shadows, and to make
brilliant renditions of sunlit scenes.  

That Emerson also designated Helmholtz the major source for his theory of differential focusing, a theory to which Stieglitz did not subscribe, shows the flaws in his otherwise empiristically sound photographic theory.

Emerson cited the following passage in Helmholtz's 1873 essay, "Recent Progress of the Theory of Vision" in order to prepare his readers for this revolutionary concept, as well as to substantiate it scientifically:

To look at anything means to place the eye in such a position that the image of the object falls on the small region of perfectly clear vision. This we may call direct vision, applying the term indirect to that exercised with the lateral parts of the retina--indeed with all except the central [here Emerson substituted "central" for "yellow"] spot.  

From this description Emerson surmised that photographic images should be elaborately finished in the center, but only roughly "sketched in" at the borders (Fig. 5).

It is interesting that, having read and extensively quoted from "Recent Progress," he never referred to the paragraph immediately following the definition of direct and indirect vision, in which Helmholtz stated:

The defects which result from the inexactness of vision and the smaller number of cones in the greater part of the retina are compensated by the rapidity with which we can turn the eye to one point after another of the field of vision, and it is this rapidity of movement which really constitutes the chief advantage of the eye over other optical instruments.  

Emerson, in his eagerness to establish his principle
of differential focusing, seems to have ignored Helmholtz's claim that perception was not a matter of forever fixing one's focus at a central or any other point, but of becoming aware of the eye's focusing process. Furthermore, he seems to have also ignored Helmholtz's dictum that the camera and the eye were different: the camera a mechanical device with parts comparable in function to the parts of the eye, the eye an organic marvel characterized not only by its parts but by its constant motion.  

Despite a recent scholarly argument to the contrary, Emerson's naturalism was far too fixed to allow for a full appreciation or even understanding of Helmholtzian dynamics. Helmholtz's empiristic theory of vision linked the act of seeing to memory, association, and the capacity to form symbols. This process, which he called unconscious inference, was predicated not on general rules, but individual tenacity. Whereas Emerson hemmed himself in by a self-imposed formula, his new "bible" of photographic principles, Helmholtz urged his readers to heed and thereby increase their psychic energies. Emerson became a tragic example, his biographer Nancy Newhall wrote, of what can happen when a man with scientific training thinks he can apply "first principles" of science to art.  

For Alfred Stieglitz, a man convinced that the key
to artistic sensibility was uniting and penetrating sight, and that the most vital artists were those who revealed their visually mediated concepts most acutely, it is highly likely that Helmholtz was a more important and more direct source than Emerson, however cordial the professional relationship the two photographers maintained. Moreover, scholars are quick to point out that the Stieglitz-Emerson relationship cooled considerably after the latter published his renunciation of naturalism in 1890.44

I believe it is most accurate to say that Emerson’s book *Naturalistic Photography*, while offering Stieglitz an important foundation for treating photography as an art, gave him an even more significant impetus to reconsider the perceptual theories of Hermann von Helmholtz that he had studied in the physicist’s course in 1883 and 1884.

If Hermann Vogel and P. H. Emerson were the photographic theorists who helped define, if not delimit, Alfred Stieglitz’s constellation of concerns in the early and mid-1880s, they were not the only scientists with whom he came in fruitful contact at this time.

As Alfred did not complete his studies at the University of Berlin (not having earned a degree, he was excised from the roll of registered students in July of 1890), his specific course of study is not known, al-
though his student records indicate his field was chemistry. Because Alfred returned to Hofmann's laboratory during that period for targeted research in photochemistry, and because his brother Julius was enrolled at the same institution and in the same field of study at the same time (1886-89), the circle of scientists he knew can be charted quite accurately. Moreover, works on experimental philosophy either published or well known at this time can be incorporated into this diagram because they formed an important part of Alfred Stieglitz's intellectual heritage.

Why Stieglitz returned to Hofmann's laboratory is not difficult to gauge. His work with orthochromatic plates in Vogel's facility had introduced him to color sensitizing dyes such as corallin and aniline. In 1843, Hofmann had published a paper showing that many substances derived from coal tar naphtha were actually one substance, the nitrogenous base aniline. Following up on this discovery, in the early 1860s he produced a variety of aniline dyes, including aniline blue and "Hofmann's violets." Undoubtedly aware of Hofmann's accomplishments in the coal tar field, Vogel probably recommended that Stieglitz pursue a course of directed study with him, this time on a formal basis.

Recalling these advanced studies in orthochromatic photochemistry, Stieglitz stated that he "followed up
many of Vogel's experiments in his own laboratory.⁴⁸ Although he did not mention Hofmann by name, it is more likely that he meant that chemist's facility rather than his own darkroom, which was far from a laboratory in any sense of the term.⁴⁹ As an advanced student, Stieglitz was free to pursue independent study under the master's direction, to work for extended hours if he chose to do so,⁵⁰ and to disseminate the results of his research to his colleagues.

From this intense period stem a number of articles written by Stieglitz for German and English photography periodicals. These brief technical reports concern film processing, corrections for over-exposed plates, new films, and new printing processes, particularly the platinum process.⁵¹

As the latter had been developed in England during the previous decade for fine art printing, and as Emerson was utilizing it at this time for his landscape work,⁵² Stieglitz was evidently immersing himself in artistic issues in Hofmann's laboratory, and solving artistic problems experimentally. Indeed, writing in 1889, he reported that he tried platinum chloride instead of gold salt as a toning bath for a new type of photographic paper just "for the sake of experiment."⁵³

Stieglitz's second Hofmann period should be acknowledged as the first of a number of symbiotic rap-
prochements he forged between art and science, as well as the source of his frequently quoted art terms "experiment," "experimental station," and "laboratory."

If Julius, three years Alfred's junior, did not come into Hofmann's orbit because of the master's knowledge of his older brother's photographic accomplishments,\(^54\) at least it can be assumed that the brothers exchanged ideas and traded enthusiasms while registered in the same discipline and perhaps in the same classes.

Julius Stieglitz studied with Helmholtz, Hofmann, Hofmann's assistant Johann Tiemann, and Karl Rammelsberg, director of the "second chemical laboratory" at the University of Berlin.\(^55\) His thesis in organic chemistry having been completed in 1889 under Tiemann's direction, he spent a time of apprenticeship with Victor Meyer, the reigning chemist at the University of Göttingen, before returning to the United States that same year. In 1892 he applied to the newly revived University of Chicago for an assistantship (only a non-salaried position was then available), which he obtained. Thereafter he worked his way through the ranks to professorship and assumed the chair of the department from 1915 to 1933. His distinguished career was marked by many honors and publications, among which his two-volume Qualitative Chemical Analysis (1911) is just one example.

Due to fundamental differences in philosophy, in
their later years Julius and Alfred were at times estranged. However, "the affectionate bonds of childhood" were most likely still quite strong as Alfred approached his twenty-fifth year and Julius, his twenty-second. The latter's dedication to analytic and synthetic methods, to the interrelationship of the sciences, and to precision and abstraction of thought emerged in his later writings and teaching methods, but must have been nascent during his student years spent engrossed in the University of Berlin chemical laboratories with his brother. Alfred shared these goals and ideals. As Julius also was a photographer, it is likely as well that the two brothers conducted photographic experiments together.

This camaraderie lasted at least through 1904, when Julius delivered a paper to the International Congress of Arts and Sciences at St. Louis. Entitled "The Relation of Organic Chemistry to Other Sciences," it helped to reinforce, if not actually establish, Alfred's new conception of the Photo-Secession as an organization predicated on scientific relationships.

The name Ernst Mach appears in neither of the brothers' memoirs or reports from the mid-1880s. Nonetheless, just as his 1883 text Die Mechanik was to be crucial for Alfred because it delineated key principles he was to follow in his photographic work, Mach's 1886
text Beiträge zur Analyse der Empfindungen was also to be important because of its reinforcement of notions of experimentalism Alfred Stieglitz had already explored. Furthermore, the book placed these notions in a contemporary philosophical context. It had a substantial impact on American experimental psychology at the turn of the century, when Stieglitz was designing his gallery as an experimental psychological laboratory, but Stieglitz was probably aware of it much earlier.

Mach dynamically united positivism with idealism. In *Analysis of Sensations*, he claimed the

...principle of psychophysical parallelism as a guide in the investigation of sensations. [This principle] follows from the assumption that all sensations can be investigated from the point of view of physics, physiology, or psychology. There are no sensations uniquely physical or physiological or psychological. There are only sensations to be investigated from different points of view and according to the choice of connections between elements isolated for examination (italics mine).\(^5\)

In other words, for Mach sensations could be isolated for speculation and testing just as chemical compounds could be isolated in a chemistry laboratory and various toning baths could be tested in a photochemical laboratory.

Mach claimed, moreover, that scientific thinking involved empirical and formal procedures. Empirical procedures were implied in the adaptation of thoughts to facts, and formal procedures were connoted in the adaptation of thoughts to thoughts. Formalist thinking was
creative thinking, involving cognition, imagination, symbol formation, and even speculation. Thus, for Mach the scientist concerned himself not only with fact, but with instinct, and with the variation of fact in pure thought.\textsuperscript{59}

This was a revolutionary idea at the time, not to be developed further until Henri Poincaré, Pierre Duhem, and Mach himself wrote seminal theoretical texts on scientific intuition in 1905 and 1906,\textsuperscript{60} and Alfred Stieglitz designed a laboratory of experimental thinking in 1905-06 at 291 Fifth Avenue in New York City. Thus Mach's text deserves closer investigation.

In his \textit{Analysis of Sensations}, Mach was careful to distinguish experimental ideals—that is, goals set by a scientist, then verified through experience—from Kantian a priori ideals. He denied that any illusive, protean, pseudosophical, Kantian Ding-an-sich...is supposed to remain after all of the qualities of a body are taken from it. Things, bodies, matter—the so-called objects of our experience—are thought symbols for combinations of elements and complexes of sensations and therefore are nothing apart from the totality of their attributes.\textsuperscript{61}

Thus, according to Mach, the analysis of sensation involved a study of certain elements associated with mind, feelings, and will. He categorized the elements of sensation—colors, temperatures, sounds, spaces, times—into three groups, an external group, an internal
group, and an interior group. Nonetheless, for Mach these elements were all interconnected. Sensations denoted not entities, but route signs, as it were, in a continuum, "the whole 'viscous' mass of the All which is the One." As Mach's idealism has been described:

the "world" or "nature"--and these terms do not refer to something exclusively "physical"--is ONE. This "ONE" is a living shifting changing thing; although, as Mach puts it, it is "once there", we may add that "it is never twice the same", like the river of Heraclitus.

Mach's "One" was "the one great porridge of experience." As he elaborated, "the single sense-perception is neither conscious nor unconscious. It becomes consciously known by being set in the context of present experience...." For Mach the scientist experimented not with abstract entities, but with segments of experience including his own:

Since there is no detached ego, since there is no detached isolated thing, the picture of physics as "man observing nature" is radically at fault. For man himself is "a bit of nature". A controlled experiment, in which events are observed both with and without the observer, can never be achieved.

The most effective scientific experiments, Mach believed, were those which could "interpret for us the largest domain of experience, and which [could] most effectively fill out or complete that experience."

Concepts for Mach summed up sets of experiences; scientific theories remained useful as long as they could systematize groups of concepts. The goal of scientific
reasoning, Mach felt, was not a leap of faith into a mythical hyper-reality but *Denkökonomie*, the economy of thought.88

Although these ideas would influence Stieglitz more profoundly in the years around 1905 than in the late 1880s, it is demonstrable that they affected him soon after Mach's book was published. For Stieglitz, Mach's theories presented a mandate to pursue photography in an intuitive and speculative as well as rigorously investigative manner. Stieglitz, as has been described, actualized best by following both his intuition and intellect. Specifically, Mach's principle of *Denkökonomie* may have directed Stieglitz to reevaluate his view of photography and photographic art. This appears in two photographs that he took in the environs of Venice in 1889.

Most of Stieglitz's photographs dating from the latter 1880s are not particularly memorable in content: *Sun Rays--Paula--Berlin* is substantially a genre picture staged to resemble and compete with contemporary genre paintings, for example those by Adolf Menzel, one of the three painters who criticized the young photographer's work while he was still under Vogel's tutelage (Figs. 3 and 4). In a similar vein, *The Card Players* of 1887 recalls a genre scene illustrated by Vogel in his 1875 Handbook (Figs. 8 and 9). Of course, what Stieglitz was aiming for in these two images was a complex *tonal*
scheme, in Paula a limited range of darks and lights
keyed to high contrast, and in Card Players a delicate
and subtle range of grays. The latter picture was also
an experiment in platinum printing, and may have gone
through several versions before Stieglitz pulled an
acceptable print.

Stones of Venice (Chioggia) and Leone of 1889,67
however, speak a rigorous language of content as well as
form. In fact, the content of these images emerges
through the severe economies of form that Stieglitz
focused on and isolated (Figs. 6 and 7).

In Leone the subject (Stieglitz's little Chioggian
guide68) is posed against a pocked and gutted stone wall.
The crevice between two blocks of stone appears to
intersect the boy's belt, thereby visually cementing him
to the surface and identifying him as part of it. This
is not simply a romantic identification of boy with earth
or rock, although these notions do in part underlie the
image. The boy in effect becomes one with the vertical
plane of the wall, suggests its scale and acts as a
counterweight to its massiveness.

In Chioggia Stieglitz succeeded in turning a
complex parabolic element—the stairway of the
bridge—into the picture plane. The stairway and scale
figure read as a grouping of juxtaposed wedge shapes and
triangles. The stability of these triangular forms
actually defines the stability—hence the quietude—of the image. Commenting on the photographs he took on his visit to the town, Stieglitz wrote, "Oh for a flashlight, that we might photograph some of the scenes, of which we could, alas! make but mind pictures."\(^8\)

Stieglitz was a man in tune with Mach’s ideas. Whereas his familiarity with Mach’s actual texts must remain an assumption,\(^7\) his knowledge of the theories of Claude Bernard, perhaps the most famous writer on experimentalism in the late nineteenth century, rests on somewhat more secure territory: Emil du Bois-Reymond knew Bernard personally.

If Stieglitz came to du Bois-Reymond asking for a bibliography on experimental thinking (as he had done when wishing to expand his knowledge about materialism and evolution), it is highly likely that the latter would have suggested that he read Bernard’s 1865 book *An Introduction to the Study of Experimental Medicine*. This is not as advanced a treatise as Mach’s *Analysis of Sensations*, but, based as it is on experimental methods developed by Liebig and his disciples, it offers a theoretical analogue to what Stieglitz had learned in practice.

Bernard, an influential chemist, philosopher and educator, dedicated his life to creative experimental research into the determinism of phenomena. In Bernard’s
view, the scientific hypothesis was a presentiment of the mind of nature’s laws, which must subsequently be learned through experience, or in his case, experiment. Our ideas, he wrote, might be considered "intellectual instruments" that we use to break into phenomena.\textsuperscript{71}

Bernard acknowledged Comte’s early nineteenth century positivist system, not system-free late nineteenth century positivist principles. That is, he subscribed to a three-stage theory of human progress. In Comte’s system these stages, each of which invariably succeeded the next, were the theological or fictitious, the metaphysical or abstract, and the scientific or positive.

However, Bernard replaced Comte’s last stage, the knowledge of laws obtained by observation and reasoning, with his experimental method. His \textit{Introduction} was primarily concerned with experimentally induced relationships. As Bernard summarized in that text:

Only in the experimental sciences these relations are surrounded by numerous, complex and infinitely varied phenomena which hide them from our sight. With the help of experiments, we analyze, we dissociate these phenomena, in order to reduce them to more and more simple relations and conditions. In this we try to lay hold on scientific truth, i. e. find the law that shall give us the key to all variations of the phenomena.\textsuperscript{72}

For Bernard, then, experiment was not the goal and end of science. Intuitive speculation, in Mach’s phraseology the adaptation of thoughts to thoughts, for him
simply did not exist. Bernard's experimenter must ultimately locate those immutable mathematical laws which governed the relationships he was able to uncover. "Experiment," he wrote, "only shows us the form of phenomena; but the relation of a phenomenon to a definite cause is necessary and independent of experiment; it is necessarily mathematical and absolute."73

Like his contemporary the British evolutionist Herbert Spencer, Bernard recognized the possibility of a great unifying force in nature, accessible to feeling, but not to experiment. For Bernard, however, the only quality which must be considered an absolute was the mathematical relation of a phenomenon to a definite cause. Thus, if during an experiment a phenomenon showed itself unrelated to a determinate cause, that phenomenon must be rejected as unscientific. Stieglitz's view of experimentalism, although grounded in similar percepts, namely those of Liebig transmitted by Hofmann, would ultimately prove more flexible, intuitive, and abstract.

Notwithstanding the limitations of his theory, Bernard, who had inclined toward a career in writing or theater before settling on medicine, appealed to avid readers and progressive thinkers of the late nineteenth and early twentieth centuries. Among these were Henri Bergson, Stieglitz circle critics Agnes Ernst Meyer and Marius de Zayas, and Stieglitz himself.74 Bernard's
experimentalist was the creative leader of the future.

As he wrote prophetically:

...we must give free rein to our imagination; the idea is the essence of all reasoning and all invention. All progress depends on that. It cannot be smothered or driven away on the pretence [sic] that it may do harm; it must only be regulated and given a criterion....

With the help of these active experimental sciences, man becomes an inventor of phenomena, a real foreman of creation; and under this head we cannot set limits to the power that he may gain over nature through future progress in the experimental sciences.⁷⁵

As the 1880s and his student years drew to a close, Alfred Stieglitz was drawn to the writings and experimental photochemical work of yet another scientist, the aforementioned Josef Maria Eder.

Eder was then working in Vienna as head of the Graphische Lehr- und Vernuchsanstalt, an Austrian government sponsored experimental photographic laboratory. This institution, a sort of Bauhaus avant-la-lettre, supported both photochemical research and creative work.

Eder was not only a distinguished photochemist, but also a historian. Like Ernst Mach, he felt that the meaning of science was revealed more through the thoughts and creations of important scientists than through the enumeration of facts and discoveries. As Eder commented about his own writings (which Stieglitz began to collect in the mid-1880s):

I have followed my plan to delineate those personages whom I thought important in the evolution of photog-
raphy and to give a record of their work in relation to their times and background. Many notable workers ended their lives misunderstood by their contemporaries, often in tragic circumstances, without having reaped the reward of their inventions. Their lives and work, nevertheless, were not spent in vain. More fortunate, gifted men of a later generation, coming from different callings, have raised the art of photography to the high place it occupies today in every sphere of human activity.

Within these lines are found numerous themes that Stieglitz was to concentrate on when he later committed himself to photo-politics and became a member of the photographic press. These include evolution, the contribution of individuals, the positing of relationships, the concept of the camera worker, and finally, photography as a fine art.

Unlike Vogel, Robinson, and Emerson, Eder did not delineate an aesthetic program. His was a laboratory aesthetic that, like Hofmann's and foreshadowing Stieglitz's Little Galleries of the Photo-Secesssion, thrived on experiment rather than programs.

Eder's contributions to photochemistry include studies of silver bromide gelatine emulsions, ammonium bromide solutions, and gelatine and collodion emulsions. He experimented with various developers for the newly discovered gelatine dry plate, which Stieglitz was to adopt enthusiastically because it was easier to use than the collodion wet plate. Eder also made important discoveries that paved the way for the development of
three-color photography, a particular application of which would prove definitive in 1907 for the reorientation of Stieglitz's aesthetics. After Eder became its director in 1889, the Vienna Graphische Lehr- und Versuchsanstalt became a magnet for photographic research, publication, and exhibition, attracting celebrities from all over the world.\footnote{77}

It is known that Alfred Stieglitz visited Eder's institute in the summer of 1890. That year Eder reprinted two of Stieglitz's technical articles in his Handbuch der Photographie.\footnote{78} The young photographer may have talked with Eder, who was a friend of Vogel's, about an advanced course of study in his facility. Likely based on Eder's recommendation, Stieglitz joined the Club of Vienna Amateur Photographers, one of the first of its kind on the continent. The club's membership believed in the correspondence of art, science, and industry; its organ, the Wiener Photographische Blätter, was devoted to artistic issues in photography.

Unfortunately, Stieglitz did not have enough time to get to know Eder very well because his European sojourn was abruptly cut short by his father's request that he return to New York.\footnote{79} It seems highly likely, however, that Eder's dedication to "camera work" and his marshaling of available human resources to further that end remained with Stieglitz, influencing him to attempt
to advance amateur photography in America. A testimonial
to Josef Eder by a colleague might just as easily de-
scribe Stieglitz, particularly in the years 1905-1908.
As Alfred Hay, writing in 1930, concluded:

The three most outstanding qualities in Eder's work
are: the purely scientific ability to sense rela-
tionships and adjust them; the ability of the techni-
cian to subserve scientific findings to technical
aims; and finally, the ability of the organizer to
direct and guide his co-workers with a deep psycho-
logical understanding of their individual capabili-
ties.

Eder represents the type of scientist who has become
more rare every day. By this I mean a man of great
learning, sound judgment, and--what is more important
than learning--human sympathy....

During the years 1883-90, the period of his formal
technical school and university education, Alfred Stieg-
litz received a thorough grounding in photochemistry,
photographic aesthetics, advanced chemistry, and avant-
garde experimental theory. He developed the nucleus of
his own theory of intuitive discovery and, with A. W.
Hofmann's help and his brother Julius's encouragement,
perfected his investigative methods.

It is well known that at the same time he fostered
a budding interest in art and in art photography by
visiting galleries, associating with artists and entering
photography competitions. He read extensively in Euro-
pean and American literature, but also kept abreast of
developments in scientific theory and philosophy.

His early photographs, although similar in overall
feeling to genre paintings by contemporary German and American artists, are masterful in their control of tonal relationships and in their formal economies. His early articles manifest impressive technical expertise, investigative thoroughness and bravado and an overarching creative élan.

In the following decade these initial accomplishments would be followed by many others as Alfred Stieglitz became a leading amateur in the photography world, and the leading exponent of amateur photography linked to science.
NOTES

1. Kent, pp. 46-82 and Lowe, pp. 73-85.


7. Kent, pp. 53-54.

8. Stieglitz, quoted in Norman, American Seer, p. 28.


10. Ibid., p. v.

11. Not knowing the circumstances under which this article was commissioned, I can surmise that Stieglitz's work had been recommended to the amateur photographic press by Vogel, perhaps to P. H. Emerson, who wrote for The Amateur Photographer. To date it is known that Emerson's contacts with Stieglitz were initiated later in
1887, when the British photographer awarded the American first prize in the "Holiday Work" competition.


13. Vogel wrote:

But our readers know already that the picture does not make itself, but that it must be first developed, brought out, fixed, and copied. In all these operations there is no precise measure or rule how long the photographer should expose to the light, develop, fortify, copy, and tone the picture. This depends on his option and judgment....But what is it that directs his judgment to determine if the picture is correct or not? It is nature, and nature alone! (Vogel, The Chemistry of Light and Photography, pp. 120-21)

14. Norman, American Seer, p. 30. Stieglitz told alternative versions of this story during the course of his career. One version, dating to 1907, has Stieglitz himself presenting his work to the German painters Knaus and Adolf Menzel, and, hearing their approbations, resolving then and there to become an artistic photographer (Stieglitz, quoted in Terry, "Photographic Antecedents," pp. 37-38). Common to the various accounts is Stieglitz's determination to make a machine-made product as artistic as a handmade one (i.e., a painting or drawing). This idea is discussed extensively in Terry, pp. 37-39, and in Kent, pp. 54-56.


16. Later Stieglitz told Norman, "When I photographed a wall over and over again...I was trying to fathom the secrets of variations in light" (American Seer, p. 29).


18. Alfred Stieglitz, "Photography of To-Day. Discovery of Photography," 1899, TMs [photocopy], p. 4, YCAL.

context of Stieglitz's scientific redefinition of Photo-Secessionist aesthetics. See the Chapter Eleven of this study.

20. "It was accepted as a fact at the Polytechnic that photographs could be made only in daylight. The cellar below our laboratory was illuminated by a weak light bulb. I made a twenty-four hour exposure of a dynamo. The negative was perfect and proved that where there is light, one can photograph. People called me that crazy American. Yes, I was a crazy American" (Stieglitz, quoted in Norman, American Seer, p. 28).


It is not known if Emerson actually saw the second Impressionist group exhibition of 1876, which included paintings by Edgar Degas, Claude Monet and Alfred Stevens, or read Naturalist criticism. Newhall cites Jules Antoine Castagnary's Le Salon de 1866 in her biography of Emerson, but does not indicate or speculate that Emerson might have had a copy of it in his possession.

29. Nancy Newhall has described Emerson's apprentice years as follows:

Soon he was photographing everything everywhere, inside or out, in all kinds of light, continually running tests and making experiments, as was his habit and discipline with every new subject. He also began microscopic photography, mounting and staining the objects himself (Newhall, Emerson, p. 29).

30. P. H. Emerson, "Science and Art," 1889, in Bunnell, p. 10. In this article Emerson took great pains to differentiate artistic from scientific photography, but stressed that they shared demonstration, selection, arrangement, lucidity, and of course, reliance upon natural phenomena (p. 10).


32. The term "empiricism" is less used than "empiricism" to define Helmholtz's and related scientific notions, but has been revitalized by Gary Hatfield in his extensive analysis of empirical thought. Hatfield defines the term as follows: "Empirism is the view that at least some of the spatial organization found in the visual experience of the adult is the result of learning; it asserts that some or all of the ability to perceive a visual world that is spatially organized is acquired" (Hatfield, p. 9). I have here chosen to follow Hatfield's definition, hence his terminology.


In his popular lecture series of 1871-73, entitled "On the Relation of Optics to Painting," Helmholtz initially assured his audience that his expertise in art might be less historically accurate or studied than theirs, but that he wished to convey how he had "arrived at [his] artistic studies by...the physiology of the senses," like a "traveller who has entered upon [beautiful fields] by a steep and stony mountain path, but who, in doing so, has passed many a stage from which a good point of view is obtained." In his experientially derived view, the object of the painter was to produce an image of reality,
...by his palette a lively visual impression of the objects which he has endeavoured to represent. The aim, in a certain sense, is to produce a kind of optical illusion; not indeed that, like the birds who pecked at the painted grapes of Apelles, we are to suppose we have present the real objects themselves (Hermann von Helmholtz, "On the Relation of Optics to Painting," in Richard M. and Roslyn P. Warren, Helmholtz on Perception: Its Physiology and Development [New York: John Wiley & Sons, Inc., 1968], p. 139).


36. Ibid., p. 154.

37. Emerson, Naturalistic Photography, pp. 116-17.


40. As the eye accommodates itself so quickly to the head turning upward, downward or side to side, Helmholtz had explained, most people, who have not thought how they see, are unaware that there is any accommodation at all. Yet "the movements of the eyeball--its glances--are among the most direct signs of the movement of the attention, of the movements of the mind..." (Helmholtz, "Recent Progress," pp. 213-14).

41. "[Emerson's] acknowledgment of the possibility of a personal point of view in photography, coupled with the limitation of its significance because it was expressed by what appeared to be an 'impersonal method,' suggests movement toward a psychological approach to photography" (Larry Taylor, p. 16).


43. Nancy Newhall, Emerson, p. 34.
Emerson's love of the outdoors permeates Naturalistic Photography. Of nature he stated, "Truly, she is rich enough to supply us all" (Naturalistic Photography, p. 88). He treated nature as a sort of oversoul, a directive organism possessing harmony, movement, expression, propitious moods, and thought. However, he treated the artist not as an individual soul in communion with nature, but as a substantially cautious interpreter cognizant equally of his subject and stipulated rules of art. The artist was to work from nature or, lacking plein-air opportunities, from his or her memories, but success could be guaranteed only through achieving the "artistic faculty," the result of a cultural education. The student must first read Burnet's Treatise on Painting, Emerson wrote, then put it down and "forget" the rules. However, he or she must know that repeating lines, a true and broad perspective, and a single, typical, distinguished and elegant motif must be sought. Abjure vulgarity, Emerson demanded, especially urban or suburban subjects (Ibid., pp. 245, 255).

44. Perhaps it was his inherent resistance to change which caused Emerson's delicate house of cards to fold a mere two years after he had constructed it. In 1890 Vero Charles Driffield and Ferdinand Hurter, two scientists and amateur photographers, proved that it was impossible to alter values at will on a photographic plate. They found that there was a definite ratio "between exposure, or the amount of light falling on the photographic plate, and density, a function which they defined as the amount of silver produced by development." This ratio, which they graphed, they called the "characteristic curve" (Beaumont Newhall, The History of Photography, 4th ed. [New York: The Museum of Modern Art, 1964], p. 92). Emerson, devastated by Hurter and Driffield's findings, dramatically published a black-bordered pamphlet called "The Death of Naturalistic Photography" early in 1891. Unable to accept scientific findings which others, such as Alfred Stieglitz, would welcome, Emerson capitulated and renounced his entire theory by stating:

Control of the picture is possible to a slight degree....But the all-vital powers of selection and rejection are fatally limited....I thought once (Hurter and Driffield have taught me differently) that true values could be obtained and that values could be altered at will by development. They cannot; therefore to talk of getting values in any subject whatever as you wish and of getting them true to nature is to talk nonsense.
In short, I throw my lot in with those who say that photography is a very limited art. I regret deeply that I have come to this conclusion (Emerson, "The Death of Naturalistic Photography," cited in Newhall, Emerson, p. 93).

Finally, in his essay "Photography Not Art," written for The Photographic Quarterly's January 1892 issue, Emerson rejected not only photographic art, but any conceivable link between photographic art and science. At the same time that members of the Stieglitz critical circle were propounding a gospel of creativity based upon machine-age sensibilities, Emerson was reverting to a pre-Spencerian and pre-arts and crafts sensibility. The machine as mechanism was his ultimate undoing.

45. The university prepared certificates of departure (transcripts) only for students who earned degrees (Dr. W. Schütze, Universitätsarchiv, Humboldt-Universität zu Berlin, DDR, to author, 6 May 1989).

46. Lowe, p. 81. Lowe gives fall 1883 as the semester Stieglitz returned to study with Hofmann. As Stieglitz registered at the University of Berlin in the fall of 1886, it is probable that he also registered in Hofmann's class either that semester or the following year.


50. It was Liebig's stated belief that chemistry students should be able to work all day in the laboratory (Turner, "Liebig versus Prussian Chemistry," p. 132). Stieglitz later told Norman that at his instigation Vogel's laboratory was kept open day and night (Norman, American Seer, p. 28). Having had the opportunity to work under such conditions with Hofmann at the university, he understandably wished to duplicate this ideal all-hours schedule at the Polytechnic, even if it meant taking responsibility for the latter facility (after the usual closing time) himself.

51. In 1889-90, Stieglitz wrote a monthly column for the German periodical Photographische Rundschau
entitled "Studien und Versuche über Neuerungen in der Praxis" ("Studies and Experiments about New Developments in Practical Photography"). For a complete listing of these and the other articles of this time, see Greenough, "Published Writings," Annotated Bibliography.

52. Life and Landscape on the Norfolk Broads, forty platinum prints with text, by Emerson and T. F. Goodall, was published in 1886.


54. It is not known when either of them actually studied with Hofmann during the period 1886-89, only that at that time they must have worked in the master's laboratory.


56. Lowe, p. 53.


59. Ibid., and Feyerabend, pp. 4, 8-9. Mach was to discuss the instinctual nature of scientific thinking further in his 1905 book Erkenntnis und Irrtum (Knowledge and Error). It is entirely possible that Stieglitz read this text when it was published, because ideas in it dovetail with his rationale for The Steerage.

60. These texts were The Value of Science by Poincaré (1905), The Aim and Structure of Physical Theory by Duhem (1906), and Knowledge and Error by Mach (1905).


63. Mach, Analysis, p. 18, quoted in Bradley, pp. 7-8.


66. Bradley, p. 11 and Brush, p. 94.

67. Homer dates Stones of Venice (Chioggia) to 1887, but as Stieglitz's essay "A Day in Chioggia" was printed in Amateur Photographer's "Prize Tour Number" in 1889, it is probable that the image was awarded a prize that year and, in fact, that it actually dates to the same time.

68. "We stood on the dock surrounded by our paraphernalia in a rather helpless condition, when a little chap, Leone by name, presented himself and offered to act as guide, which offer was gladly accepted" (Stieglitz, "A Day in Chioggia," Amateur Photographer, Prize Tour Number [June 1889]:8).

69. Ibid.

70. According to Lowe, Stieglitz typically did not say much about influential theorists or philosophers. He always tended to deny any influences at all, saying that his ideas were singular and entirely his own (S. Davidson Lowe, interview by author, 5 July 1989, Rocky River, Ohio). However, "Alfred never lost the imperatives of a chemist moving through controlled experiments toward new formulas; his emphasis on experimentation in the arts was based on a scientific method" (Lowe, p. 210). William Homer has commented that Stieglitz tended to divest himself of things (such as books) that did not fit into the logic of his thinking at a particular time (William I. Homer, interview by author, 16 May 1989, Rocky River, Ohio). Thus, there is no reason to assume that Stieglitz did not read Mach and derive much from these texts in the period in which he was closest in spirit to Mach, namely 1883-1910.


72. Ibid., p. 54.

73. Ibid.
74. Meyer's and de Zayas's critical writings influenced by Bernard were published from 1913-15, thus do not come within the purview of this study.

75. Ibid., pp. 18 and 24. Bernard's use of an industrial metaphor ("foreman of creation") prefigures the discourse of engineering that influenced Charles Caffin, and throught Caffin Alfred Stieglitz, in the early years of the twentieth century.


77. One of these was Ernst Mach.


79. Stieglitz returned to America in September 1890, primarily because his father had secured a position for him with the Heliochrome Company, a photoengraving firm of which he had become co-owner. Stieglitz's managerial position commenced in October.

CHAPTER FOUR

ALFRED STIEGLITZ FROM 1890 TO 1898, PART I: THE DEVELOPMENT OF A SCIENTIFIC AND ARTISTIC SENSIBILITY

In the early 1890s Alfred Stieglitz entered the world of American journalism, photograph exhibitions, and photo-politics. This is also the period in which he made his first substantial mark in photographic art and created his first experimental laboratory.

Stieglitz scholars have seen fit to circumscribe these years by illustrating and critiquing Winter—Fifth Avenue and The Terminal (both 1893), two images whose fame rests primarily on Stieglitz's later descriptions of them to Dorothy Norman.¹ Whereas Stieglitz's conversations tell us much about these pictures and about his emerging photographic philosophy, they evidence only a small portion of his interests at that time. Moreover, his other photographs, his writings, and the direction of his new interest, photography journal editor, indicate that his involvement in issues of art and science was substantial and theoretically grounded.

The years 1890–98 might best be termed transitional, in that Stieglitz used them to evaluate the ideas he had been exposed to in Germany; however they were not, as the author of the most recent major study on Stieglitz argues, merely a stepping stone to his mature, "subjec-
The nature and scope of Alfred Stieglitz's aesthetics in the early and mid-1890s can best be gauged by examining all three facets of his creative production: his published writings, editorial work, and photographs. The first two concerns will be the subject of this chapter; the photographs will be the subject of the next.

Such an investigation makes it quite clear that, before entering the mainstream of the art photographic community (a community whose most theoretically-minded practitioners were thinking, writing, and photographing along Spencerian, technologically progressive lines), Stieglitz had developed his own aesthetic keyed to an anti-systematic, naturalistic theory of vision and scientific materialism.

Whereas the even more advanced formalist notions advocated by Ernst Mach were incorporated into this aesthetic, Stieglitz apparently felt it necessary to thoroughly explore naturalistic idioms first. This is because his ideas were actually grounded in what Stephen Brush has termed post-romantic naturalism. As Brush has explained:

...there is no doubt that there was a counter-movement [to romanticism] in the arts, known either as "realism" or "naturalism," and a corresponding counter-movement in the physical and social sciences which has been called "materialism," "positivism," or "mechanism." In literature, we find the attempt to portray life as it really is, with all its sordid and
trivial aspects....

[This phase] included atomism, materialism, mechanism, naturalism, and certain aspects of positivism. Realism is the opposite of romanticism in many respects, but because it was influenced by romanticism it was not simply a return to the eighteenth-century Enlightenment.³

As a scientist Stieglitz was intellectually curious about natural (particularly atmospheric and chemical) phenomena, and as a romantic idealist he venerated natural spirit.

Working from this perspective, Stieglitz was also able to identify and illustrate the most salient points of P. H. Emerson's, to internalize the empiricist theories he had learned from Hermann von Helmholtz, and to explore the philosophical ideas of Karl Vogt.

First, it is important to outline Stieglitz's major activities during this period. Alfred Stieglitz returned to New York primarily because his father Edward had procured a position for him by purchasing a limited interest in a new photoengraving company. Again spurred by his father, Alfred, along with Louis Schubart and Joseph Obermeyer (all close friends who had met in 1881 on the boat from New York to Europe), purchased the company in 1891 and renamed it the Photochrome Engraving Company. Alfred's tasks there were primarily administrative, but he was passionately interested in quality work and in treating his employees as advanced photochemical
researchers.

Also in 1891, he joined the Society of Amateur Photographers, a group dedicated to the advancement of art and science in photography. Recognized early on as a technical expert, he was asked to lecture to the group on his various areas of research. In 1893 he became co-editor of the Amateurs' journal *American Amateur Photographer*. On November 16, 1893 Stieglitz married Joseph Obermeyer's sister Emmeline; the newlyweds took an extended honeymoon trip to Europe in 1894, where Stieglitz took a series of important photographs.

Fundamental differences in editorial philosophy caused Alfred to withdraw from the staff of *American Amateur Photographer* in 1896, but offered him time to direct his energies to reinvigorating the Society of Amateur Photographers and helping effect its merger with the New York Camera Club.

**Stieglitz as Writer**

Between 1887 and 1902, Alfred Stieglitz wrote over fifty technical articles for various photographic publications. Those published before and soon after he returned to the United States are primarily short (from one to three pages) descriptions of new processes, corrective techniques, and alternative solutions for typical fine art technical problems, for example, toning
platinum prints. Enthusiastic as well as rigorously investigative in tone, they were written in the first person and meant not only to encourage readers to try what the author had essayed, but to go beyond Stieglitz's solutions and pursue further experimentation.

The early laboratory reports also document how Stieglitz repeated his experiments before members of the Society of Amateur Photographers (these were the first of his many "laboratory demonstrations," which eventually came to include fine art in his gallery "291.") As has been pointed out, he approached his material and his audience methodically, providing step-by-step descriptions of his photographic processes within a texture of hypothesis, experiment, and conclusion. His approach to technique is easily understood, but never, as Sarah Greenough avers, "dry."

Stieglitz's goals, as exemplified in these and particularly in his later articles, were the same as those of other disciples of A. W. Hofmann: to establish the causes of chemical transformations and make the "trans-empirical apparent and understandable" through the use of causal laws.

An article on lantern slides published in American Amateur Photographer in 1892 exemplifies this practical, experimental approach. Stieglitz reported having purchased two boxes of Carbutt slide plates. From one box
he produced flawless slides; from the other, a batch of stained ones. Not content to go directly to his solution of this problem, he recounted his thought processes, to wit:

What could have caused this stain was the natural question which arose. Was it the old one-solution developer? Was it the long development, prolonged on account of the low temperature in the dark room? Or, were the chemicals at fault? These questions were all satisfactorily answered in time, inasmuch as each question was scientifically investigated (italics mine).  

Having been advised to try a box of Eastman slide plates and in so doing, obtaining perfect results, Stieglitz concluded that the Carbutt plates were defective because they deteriorated faster than the Eastman ones. This was due, he speculated, to an excess of iodine of silver and free iodine. In any event, exposed Carbutt plates could be rendered stainless if treated in a weak solution of cupric bromide.

The cause of lantern slide staining established, Stieglitz offered photographers the following advice: use fresh slide plates, use Carbutt plates when a warm tone is desired and Eastman plates for "exceptionally brilliant slides." But, he ultimately cautioned, this advice should be considered merely that and not hard and fast rules, because it resulted from research still in progress.  

It is important to note that while performing
experiments and reporting on lantern slide and other photochemical issues for the amateur market, Alfred Stieglitz was also working at his offices in the Photochrome Engraving Company. According to Lowe, he considered this an opportunity to establish a laboratory of printing processes that would be second to none. However, his enthusiasm and rigor fell primarily on deaf ears, impressing only the American printer Fritz Goetz, whom he later employed to print photographs for Camera Work. In a letter to Goetz, Stieglitz revealed the essence of what must have been an exhilarating collaborative laboratory relationship: "honest work," "the relationship of things," "constructive use," and "vision combined with faith." Thus, Stieglitz appears to have considered both the work of his darkroom and the work of his firm philosophical and practical pursuits. This demonstrates his zeal for the experimental life, and ultimately his debt to Hofmann.

In his articles of the early 1890s, Alfred Stieglitz showed himself to be a rigorous empiricist and causal thinker in the tradition of Justus Liebig, Hofmann, and Claude Bernard. Infiltrating his discussions—sometimes subtly, sometimes quite directly—are his creative ideas. This demonstrates that his grounding in empiricism—adapting thoughts to facts—did not preclude speculative thinking—adapting
thoughts to thoughts.

The tenor of Stieglitz's ideas at this time was naturalistic. Averse to categorizing or labeling, he did not use the term "naturalism" or "naturalistic" to describe his philosophy. However, he repeatedly utilized the word "effect." An analysis of its occurrence reveals how important a term this was.

In an article written in the form of a travelogue to *Amateur Photographer*, Stieglitz recounted a visit he made in 1890 to the Italian town of Cortina d'Ampezzo. Much of the piece is given over to vivid descriptions of the weather, which to his disappointment was so foul that picture taking seemed to be out of the question. However, once the clouds had parted and the sun had come out "in full force," he was able to take two views of the mountainous landscape. He was pleased with his work (he felt it was guaranteed to win him a prize) because it was pictorial and "exactly the effect seen in nature."12

Unfortunately the two pictures Stieglitz described have not yet been made available (if in fact they do exist). However, another mountainous scene taken by him on another European journey two years earlier probably deals with a similar notion of "effect" (Fig. 10). Entitled *Approaching Storm, Lake Thun*, this photograph captures brilliant sunlight streaming through dark thunderheads and illuminating their billowing plumes.
The picture represents not only an effect of weather, but an effect of light—dazzling light. Other photographs Stieglitz took in the early 1890s, known solely in poor reproduction, seem to reinforce the idea that "bedazzlement," the representation of objects as seen by the light-fatigued, squinting eye, was one of his definitions of effect (Fig. 97).13

Stieglitz's other definition of effect was "tone-rich" or "tonal." In an 1892 article on platinum printing, he averred that the platinotype or platinum print "is especially adapted for those beautiful gray effects we so love to see in nature," and that the perfect negative for platinum printing is tonal: "full of gradation," but "not too dense."14

It was Stieglitz's contention, expressed most forcibly in another article of 1892, "A Plea for Art Photography in America," that American amateur photography lagged far behind its European counterpart because it was not "pictorial."15 As opposed to a photograph, a picture, Stieglitz explained in this text, was unconventional, original, constructed according to tonal relationships, and eminently simple. At the same time, it revealed its creator's studied grasp of material (landscape, interior, group portraiture) and his preconceptions. Furthermore, for a photo to constitute a picture, it had to be an artifact of vision. He noted particular-
ly that

Atmosphere is the medium through which we see all things. In order, therefore, to see them in their true value on a photograph, as we do in Nature, atmosphere must be there. Atmosphere softens all lines; it graduates the transition from light to shade; it is essential to the reproduction of the sense of distance. That dimness of outline which is characteristic of distant objects is due to atmosphere. Now, what atmosphere is to Nature, tone is to a picture.\(^\text{1}\)

With this brief and cogent description, Stieglitz differentiated his tonalism from that of P. H. Emerson, although both were predicated on the notion of atmosphere. While Emerson made atmosphere a compositional imperative, delineating it as "aerial turbidity" or "the property of light which when traveling through space became slightly diffused in its representation of objects,"\(^\text{17}\) Stieglitz simply defined it as visual and tactile space.\(^\text{18}\)

This philosophical difference of opinion is aptly illustrated in two images. In Emerson's \textit{A Slippery Path--Winter Scene} (1886), a snow-covered landscape is made unnaturally turbid by being thrown almost totally out of focus. In Stieglitz's \textit{The Approaching Storm} (1887) atmospheric turbidity is due entirely to atmospheric turbulence (Figs. 11 and 12).

By advocating naturalistic tonalism, Stieglitz aligned himself with the progressive American painters known as "The Eight" who, under the leadership of Robert
Henri, would popularize the notion of atmospheric richness and depth.\textsuperscript{19} He also aligned himself with American naturalist writers William Dean Howells and Theodore Dreiser, for whom gray skies and rainy weather were artifacts of acute vision.\textsuperscript{20} In the context of science, however, Stieglitz’s tonalism is Helmholtzian.

In his "On the Relation of Optics to Painting," (1873) which Stieglitz had recently read,\textsuperscript{21} Helmholtz had discussed atmospheric painting (such as that of Rembrandt), noting how it should reflect the artist’s grasp of how the eye perceives objects within a dimly lit environment. Subjected suddenly to moonlight, Helmholtz explained, the eye first becomes dark-adapted, then orients itself to the presence and location of objects in its field of vision. Unlike the bedazzled eye in sunlight, the eye in moonlight does not overtire from excessive glare. It perceives primarily dark shapes which grade quite sharply to lighter tones and luminous contours. Rembrandt suffused his visual fields with the glow or "yellowish haze of powerfully lighted aerial masses" because he was translating them into artifacts or signs appropriate to the moonlight-adapted eye.\textsuperscript{22}

Although Helmholtz did not discuss the visual signs or tonal relationships that the artist painting or photographing in the rain, in a fog or on a cloudy day might represent, his view that perception was not system-
atic but experiential was evidently understood by Stieglitz. Just as Helmholtz’s aesthetic theories were empiristic (derived from various physiological conditions of the eye, to which keen attention was to be paid), so too were Stieglitz’s ideas visually conceived and visually verifiable.

That the pictorial photographer would possess and constantly hone his powers of observation was a foregone conclusion for Stieglitz. He explained this attitude in his writings, and defended it in his photographs. He also saw himself as a materialist in the philosophical tradition of Vogt, and in the photographic traditions of the mid-century Parisian documenter Gaspard Félix Tournachon, known as Nadar, and his own mentor, Hermann Vogel. It was in this materialist mode that he evaluated his experiences in the Black Forest and in Holland, two "artists’ haunts" he visited on his 1894 honeymoon to Europe.

For Stieglitz, writing the following year in Photographic Times, the life of these places was communicated by their material presence. He found the residents of Katwyk in Holland, for example, as fierce and resistant as "the phase of nature that surrounds them."

Fishermen and their boats, and the houses built to resist the rude storms, are the themes here on which artists frame their poems....[The people are] immense in stature, hardy, brave beyond belief, stoical from
long habit, seeing brother, father, son and husband leave on their perilous fishing trips far out in the North Sea, not knowing when or whether at all they will return, welcoming them with a simple handshake....

In 1856 Nadar wrote, "To produce an intimate likeness rather than a banal portrait, the result of mere chance, you must put yourself at once in communion with the sitter, size up... his very character." Nadar’s portrait of the French writer Théophile Gautier, taken in 1857, prefigures Stieglitz’s Portrait of a Dutch Woman of 1894 in its heavy massing, close attention to textural juxtapositions, and frank acknowledgment of age (Figs. 13 and 14). This kind of naturalism also recalls that of art critic Edmond Duranty, who wrote in a similar vein in The New Painting (1876):

A back should reveal temperament, age and social position, a pair of hands should reveal the magistrate or the merchant, and a gesture should reveal an entire range of feelings. Physiognomy will tell us with certainty that one man is dry, orderly, and meticulous, while another is the epitome of carelessness and disorder.

Hermann Vogel’s aesthetics also stressed material form. "A thorough study of the human body is necessary in every branch of plastic art," he claimed. For Vogel, the portraitist erred in retouching his prints so as to smooth out anatomical irregularities and imperfections; correct portraiture delineated the subject’s bone structure, musculature, and personal traits, including the wrinkles and furrows, in a sculptural manner. "Care must
be taken not to introduce any object deficient in plastic qualities, as is but too frequently done," Vogel wrote.  

As already noted, the attitude of the scientific materialists, which Stieglitz knew through his reading of Karl Vogt, was similar. For these thinkers, the spiritual could be eliminated, resulting in a purely materialist world view. Natural science for them had its own inalienable rights, subject to no authority save man's experience in the world. This is not to say that the materialists disavowed philosophy. Above all, they wished to be known as philosophers of realism.

In his 1889 article on his visit to Chioggia, Stieglitz had pointed out that the purpose of the trip was to "hunt" for "pictures and studies from life." Thinking further along these lines, he later found a certain poetry, enjoyable albeit to a limited degree, in how the ubiquitous Katwyk sandstorms "polished" his lens barrel. Finally, evaluating a series of pictures he had taken under stormy conditions in New York City, he praised the manufacturer of his hand camera because it had withstood the vicissitudes of "wind and storm."

As noted, undergirding Alfred Stieglitz's naturalistic and materialistic viewpoint was a romantic one. Commenting on one of the images he brought home from his honeymoon, the well known photograph, the Net Mender (Fig. 15), Stieglitz stated:
It expresses the life of a young Dutch woman: every stitch in the mending of the fishing net, the very rudiment of her existence, brings forth a torrent of poetic thoughts in those who watch her sit there on the vast and seemingly endless dunes, toiling with that seriousness and peacefulness which is so characteristic of these sturdy people. All her hopes are concentrated in this occupation— it is her life.  

Some years earlier he had received a copy of an address on aesthetics given in 1892 to the Boston Industrial Art Leaders Association, and had underlined the following passages: "Art springs from the power of a man's mind to create ideals and its impulse to realize them. Nature deals with the accidental; Art selects with what is permanent." "Art selects, creates, and preserves, and has definite aim and unity, and all with reference to the soul of man."  

It will be recalled that in his book of quotations, begun in 1884 in Berlin, Alfred Stieglitz had included a number of citations from the works of early nineteenth century romantic writers. These included the German philosophers Friedrich von Schlegel and Arthur Schopenhauer. The citation from Schlegel reads, "Understanding is mechanical spirit; common sense is chemical spirit and genius is organic spirit." And one of his excerpts from Schopenhauer is the following: "What man wills he can do; what he cannot do he should not will."  

According to Schlegel, artistic activity was the supreme form of genius; creative work led the artist to
discover divine spirit within himself, thus achieve organic wholeness or unity. According to Schopenhauer, the Will was the unity that underlay all experience. Individual consciousness was identical to the supreme Will; it was actually a sort of plaything of stronger and darker forces that directed its performance. For Schopenhauer aesthetic experience was a form of negation in that it was identified with "contemplation" or "will-less perception." 34

Putting all these sources together, Stieglitz had an interest in writings which acknowledged an abiding unity in nature, and which traced the thrills and vicissitudes of human involvement in natural spirit. But, as the excerpt from his article on the Net Mender suggests and other statements confirm, Stieglitz's romanticism was not tied to these a priori conceptions. Rather, he replaced abstract unities with the unity of experience. He was not tied to romanticism, rather he was moving toward neo-romanticism.

For example, Stieglitz's description of his portrait of the Dutch net mender does not so much set her apart as a paragon of natural purity as project himself into the tempo of her occupation. Rereading his copy of the art lecture delivered in Boston in 1892, he marked the following additional passage "excellent": "to surrender one's self to the imitation of nature would be to surren-
der all freedom, all individuality, and all ideals."\textsuperscript{35}

Writing about the hand camera in 1897, he emphasized how the simplicity of that mechanism made it possible for him to keep "his mind and eyes...fully occupied with the subject before him."\textsuperscript{36} And in an exhibition review of 1893 he commented, "stick to the truth in nature." Truth is an ideal, he explained, that lends itself to creative interpretation.\textsuperscript{37}

Just as photography for Stieglitz was not to be circumscribed by a priori ideals but become the handmaid of dynamic, neo-romantic sensibilities, photography held no mystical claims on him.

He considered it his task to inform his readers about the visual, material, and spiritual relationships he had discerned, and to bring to their attention the necessity of rendering these relationships tonally. He was equally intent upon providing them with the technical means whereby these ideals might most efficiently be achieved. This is because he was first and foremost an experimental scientist. To that end, he concluded his aesthetic articles, such as the one on artists' haunts and the one about his trip to Chioggia, with postscripts listing the brands of plates and lenses he used, and specified the preferred circumstances of development.

In other articles on various photographic subjects, including night photography, one of his specialties,
Stieglitz also discussed the best cameras, plates, lenses, shutters, and exposures for achieving optimum exhibition prints. A key topic of his was simplicity, again a legacy from Hofmann. Photographic apparatus and solutions should be so easy to use that photographers need not worry about inefficient movements or wasted time. Rather, with technique honed to a fine edge, they could—and should—spend their valuable time selecting a subject, studying its tonal relationships, examining its material relationships, and finally, coming up with an idea that “satisfies the eye.”

Never did Stieglitz allow his preconceptions to become dogmatic, although caught up in an aesthetic fervor later in the decade he would not be averse to strong suggestion. It was his expressed conviction, developed fully at this time, that the photographic process should be as elastic as the ideas it was called upon to realize.

Thus in the mid-1890s, as in the late 1880s, Stieglitz cemented a firm bond between science and art. In the first period of his independent career as a writer, he had made a connection between platinum printing technique and the subtle harmonies that technical facility in the platinum medium could achieve. By the second period, he had expanded the scope of his ideas, uniting a theory derived from German experimental
science—simplicity of apparatus, complexity of idea—to a neo-romantic theory of art. It was a bond of experience and conception, and would prove seminal for Stieglitz's move beyond naturalism and materialism in 1907 and for his receptivity to modern art in the years 1908-1910.

Stieglitz's technical reports, photochemical discussions, and aesthetic essays of the early and mid-1890s have been discussed. A fourth type of photographic writing which engaged him at this time was of a more historical nature, a probable legacy from Eder.

Although several such articles written by Stieglitz have been analyzed, a first draft for "Pictorial Photography," subsequently edited and retitled for 1899 publication in Scribner's Magazine, has not heretofore been recognized. The first part of this draft, which was subsequently cut, gives a brief account of the prior history of the medium. Here Stieglitz wrote that more significant than facts were the early discoverers, who contributed to the progress of civilization by yoking science and art together. Each discovery, he continued, opened new fields "which soon became the favorite hunting ground of the scientist and experiment[al]ist."³⁹ Prospects for photography as an applied art were limitless, Stieglitz claimed, because contemporary practitioners were not only heirs to the discoveries of the past but
philosophically motivated by what those discoveries meant.

In short, Stieglitz concluded, photography was an art of keen and searching vision. Its present task was to penetrate and reveal the structures of nature that would otherwise be hidden, and to successfully engineer a color process, one problem Vogel, Eder, and others had tackled but not resolved. A solution leading to color photography, he noted, is "what the world is looking for and daily expecting." 

Stieglitz as Editor

Before tracing Stieglitz's naturalistic ideas as they were revealed in his editorial work for *American Amateur Photographer*, a review of contemporary photographic journal criticism reveals some noteworthy surprises. Not only did a "first principle" school flourish, but also it was challenged by authors--many of whom today are unknown because of the journals' policy not to print credentials--who admonished photographers to move beyond prescriptive art. Although "prescriptions" still appeared in their articles, including calls for simplicity, attentiveness to subject, and centers of interest, they were either subordinate to or paired with calls for perceptual and emotional awareness.

The conservative ground was held by portentously
titled articles such as "'Less Matter and More Art,'" "What is Art?" "Motive and Method in Pictorial Photograph" and "Pictorial Principles." Beginning with progressive-sounding calls for vital force, personal feeling, individuality, fragments of experience, sentiment, sensation, and the thrill of the unknown, they lapsed quickly into prescriptive admonitions and rhetoric.41

Among the voices for change was Richard Hines, Jr., in 1898 Secretary of the Mobile, Alabama Camera Club and a free-lancer who contributed to American Amateur Photographer. His 1898 paper "Artistic Photography" hewed quite closely to H. P. Robinson and the British aesthetician John Burnet,42 to the extent that each theorist was quoted and commented upon. However, after quoting his predecessors Hines cautioned:

It must be admitted...that the same object represented by different photographers will produce different pictorial results...because there is something different in each man's mind, which, somehow, gets communicated to his finger's ends, and thence to his pictures.43

Much of a second article penned by Hines, entitled "Science and Art," (1900), consists of a quotation from a letter Hines had received from a colleague. The key statement of the letter is a definition of the relationship between art and science: "Art is idealized science. The laws of science are immutable, but in the hands of an expert they are so deftly managed as to become
idealized." Hines corroborated his friend's definition by noting that artists were emotionally as well as intellectually driven.

That Spencerian technological analogies served as forces for modernization of photographic criticism, as well as for the advancement of the discipline itself, was shown as early as 1888. It will be recalled that Spencer had stressed the interrelationship of the arts and sciences as component parts of the machinery of modern culture. A certain W. H. Potter from Indianapolis, Indiana, writing to *The American Annual of Photography and Photographic Times Almanac* in 1888, noted that, "Art has its mechanical, its scientific side, its proportion of form, its relation of facts and their sensuous representation, all of which 'must be brought to perfection before free art may arise and display itself.'"

Edward L. Wilson, writing in the same year and for the same journal, advised the student of photography first to read Burnet, then to immerse himself, as man and machine (a thoroughly non-Burnet like activity, but one congruent with Spencerianism), into the mainstream of contemporary life. Wilson explained:

...whichever way he looks, the elements of things about him form pictures for him--things seem to run together for him just as promptly as the molecules of silver in the film respond to the touch of the developer, and run, leap, fly! to their places, in order to build up the lovely image. The street, the church, the museum, his home, the train, the art
gallery, alike hold the latent images. He is the developing agent; he applies himself, and pictures are produced for him wherever he looks.48

From statements such as these, it is evident that the concept "pictorial" signified something far more complex, introspective, and modern to critics inclined towards perceptual dynamics and suggestion, than it did to critics mired in Burnet's, Robinson's, and even P. H. Emerson's principles.

The progressive ideas summarized in the preceding paragraphs seem to have been non-theoretical in scope. Lacking biographical data on the respective authors and lecturers (there were others who wrote along the same or similar lines), one can however state that their ideas were conceived as impassioned reactions to an entrenched academic and formulary approach to photography. These were pools of creative thought, whereas the theoretically-based experimental and idealistic notions being formulated by Alfred Stieglitz and his colleagues at the same time could be compared to a geyser.

From this discussion it should not be inferred, however, that American Amateur Photographer had existed in a sort of intellectual backwater before Stieglitz came on board. As demonstrated in a number of articles published before mid-1893, writers for this journal were already promoting the virtues of technique, technical perseverance, vision, and breadth of feeling, as well as
passionately advocating photography as an expressive medium respectful but independent of painting. Committed to seeking and realizing balanced interrelationships of science and art, the overall tenor of the magazine defined photography as a unique, relational construct. Catherine Weed Barnes, a photographer and writer from Albany, New York, stated this notion quite well in 1891:

A painter, as he works, concentrates his vision, or, in other words, focuses on the particular spot where his brush rests and then turns to another, but he does not take in the picture as a whole, only in sections. The lens, at the time of exposure, takes in everything at a glance and thus more truly represents the relation of the different parts, and the art comes in when the camerist snatches the exact time at which those relations are most harmonious. It is the brain behind the lens, as behind the brush, which governs the result.47

But, as we have seen, Alfred Stieglitz was attuned to empiristic and idealistic concerns well before he came into contact with American Amateur Photographer; as shall be discussed, his important photographs of the 1890s reflect this avant-garde outlook. Therefore, what Stieglitz found in the journal was an attitude that corroborated his own.48 He needed only to focus this attitude and make an agenda out of it.

While he was still living and photographing in Berlin, Stieglitz had first donned the critic's hat. His initial article in this genre, "A Word or Two About Amateur Photography in Germany," was published in the British journal The Amateur Photographer in February of
1887. Two years later, in his review of the Berlin Jubilee Exhibition for the *American Amateur Photographer*, the twenty-five year-old Alfred Stieglitz concentrated on, as might be expected, current technological advances in photography, and praised P. H. Emerson for perseverance in the naturalistic cause.48

It was undoubtedly due to Emerson’s efforts on his behalf that Stieglitz received other commissions from this magazine after returning to the United States, some for technical articles and others for illustrations. Stieglitz had become a major figure in the art photography world; he continued to receive awards and medals from competitions in America and abroad. Evidently eager to capitalize on his expertise and name, the editors of *American Amateur Photographer* invited him to co-edit the journal beginning in August 1893.

His editorial comments reveal that Stieglitz considered this position an important calling. In the November 1893 issue he instigated a column to be entitled "Prominent Amateur Photographers," asking prospective applicants to send examples of their portrait work for evaluation and potential reproduction. He also initiated a "Beginners’ Column" under the by-line of F. Colburn Clarke, a future charter member of the Photo-Secession, the photographic society Stieglitz was to organize in 1902. Beginning in 1894, articles and illustrations by
photographers who had established their reputations in
the progressive amateur photography circuit were also
featured.50

Under Stieglitz, *American Amateur Photographer*
became a lively forum for the dissemination and discus-
sion of ideas that he and the amateurs he respected
deemed most significant. Not surprisingly, technique,
perception, individuality, and sensibility were his major
themes.

One of Stieglitz's first efforts as editor was to
publish an address given to the London Camera Club by the
British photographer J. S. Bergheim. Bergheim's subject
was the photography of the human figure, a theme that had
interested Stieglitz since his student days. Although
the article broke no new ground, it served to reinforce
two crucial ideas: the photographer must exercise his
knowledge of perceptual science and modulate it through a
lens of conception and, having assigned himself a task,
he should work at it (recall Emil du Bois-Reymond's
slogan "Laboremus") until all of its criteria are satis-
fied.51

Early in 1894 Stieglitz published another paper,
"Certain Aspects of Modern Photography." Written by
William Gill, this essay introduced the thoughts of Henri
Bergson, a philosopher whose ideas were to penetrate both
of Stieglitz's later publications, *Camera Notes* and
Camera Work. 52

Although this was a harbinger of things to come, by far the most significant advance American Amateur Photographer made under Stieglitz’s direction, however, was its concentration upon the evolution of the theories of a single critical figure, the naturalistic photographer George Davison.

In 1894 Davison was honorary Secretary of the London Camera Club and a charter member of the London photographic brotherhood, the Linked Ring (Stieglitz’s involvement with the Linked Ring will be discussed in Chapter Six). Stieglitz had known Davison at least since 1893, when he gave high accolades to work that the British photographer had exhibited at the Fifth Joint Exhibition in Philadelphia. 53

Davison had achieved notoriety with soft-focus, densely atmospheric images taken with a pinhole camera; one such image, entitled Harlech Castle (1903), would later be published in Camera Work. A consummate technician, Davison was also a relativist and free spirit. As did Alfred Stieglitz and other colleagues on the amateur circuit, he felt that art photography should be considered a genre unto itself, and that the parameters of the artistic photographer were both different from and more exacting than those of the technical illustrator.

Thinking along similar lines as American writer
Dallett Fuguet, who wrote for Stieglitz in *Camera Notes*, Davison distinguished scientific from artistic photography. Both Davison and Fuguet felt that the scientist was not a creative figure but simply an observer, a rigorous fact-finder and a mechanical transcriber. By contrast, the artist was neither hamstrung by these rigid conditions nor circumscribed by any need to achieve mechanical perfection; he was a perfectionist in his continual search for the right conditions to help him realize his feelings. However, Davison believed that artists must also be scientists. They must be close observers of nature and what the eye sees.

Based on his European education, Stieglitz had a much more knowledgeable and expansive conception of science, but, convinced that if a piece of writing evinced the workings of a keen and lively intellect, it was worth publishing, he did not impose these ideas upon other writers.

Knowing Davison's commitment to individual feeling and sensation, and knowing he could count upon Davison for future articles, Stieglitz published in March 1894 a "bombshell" whose impact must have been profound, if less universally devastating than P. H. Emerson's recent denunciation of artistic photography.

In "Ametropia as an Element of Art Criticism," a physician named George E. Blackham, who appears to have
divided his time between his medical practice and amateur photography, claimed that soft focus work was not only aesthetically distasteful but the result of acute physiological impairment. Only a myopic eye, Blackham claimed, sees nature this way. He noted that although Helmholtz had proved that the eye is not an optically perfect instrument, the German had claimed it was still a satisfactory apparatus. "It is time for those who see normally to disavow the vision impaired as authorities in art," Blackham thundered. "It is time for art to accept the guiding light of science, and to throw overboard the false conventionalities of ignorance and blindness."  \(^{58}\)

Stieglitz made no editorial comments on Blackham's article, although later, as editor of *Camera Notes* and *Camera Work*, he would not be averse to introducing important essays himself. Instead, he commissioned Davison to respond to Blackham, to give an alternative view of the soft focus aesthetic and Davison's impassioned response, "Vision and Focusing," appeared in *American Amateur Photographer* 's June issue.

Although he believed himself to be an artistic rather than a scientific photographer, Davison took offense at Blackham's blackballing not only of soft focus work, but of scientific theory by stating:

[It does not occur to Blackham that] there may be a motive besides that which actuates the reporter, enumerator or measurer, and a science beyond that
which is the stock-in-trade of the examiner of eyeballs, and of the delightfully sound matter-of-fact person whose philosophy does not include any such weakness as poetry or sentiment. And this, too, in the land of Ralph Waldo Emerson.⁵⁹

Under pressure by Blackham’s invocation of perceptual science in order to denounce soft focus (and his own) photography, Davison revised his bipartite conception of art and science. Thinking certainly of the Transcendentalism of R. W. Emerson, whom he cited, but perhaps also of Helmholtz, Davison now advocated an agenda based not upon the opposition of art and science but upon the correspondence of one with the other. Furthermore, he claimed that universality of focus was impossible, that the eye assumed a different perspective for each area in its field of vision, and that the artistic eye was the bedazzled eye.⁶⁰

Davison must either have consulted Stieglitz or Helmholtz’s writings directly to corroborate such scientific arguments. Although Davison did not advocate a strictly scientific point of view in photography—“effect,” for him a purely artistic province based on naturalism, was his prime theme—it is significant that he revised his previously exclusionary aesthetic to imply, if not actually admit, a metaphysical and empirical concurrence of art, photography, and science.

That Stieglitz approved of Davison’s rejoinder is shown in the pithy statement published on the "Editorial
Comment" page in the December 1894 issue. Davison is "Our Leader," the editorial claimed: "He has certainly been the champion of our art since [P. H.] Emerson ceased to believe in the possibilities of the camera as a means of producing pictures of any art value."\(^1\)

In a subsequent article, "Focusing," published in December 1894 with an illustration by Stieglitz, Davison refined the opinion he had so passionately broached a few months earlier, an opinion with which it must be assumed Stieglitz agreed. Opticians (Davison probably meant Blackham) were the scientists who must be dissociated from art photography; they claimed to make laws for artists, whereas artists alone possessed "seeing eyes." However, "knowledge" and "continued experience" were the marks of both the cultivated artist and the photomicroscopical or photo-astronomical scientist.\(^2\)

By 1895, Stieglitz had assigned Davison the regular "English Notes" column in American Amateur Photographer. To the readers of the journal this was a significant move: P. H. Emerson, the former British correspondent for the journal, had been replaced. Emerson was just as aesthetically moribund as was the prescriptive theory he had attempted to promulgate in the great Helmholtz's name.

During the same year, Stieglitz stated the editors' goal as the promotion of high standards as well as the
"welfare and progress" of their journal.63 Keyed to evolution, this editorial statement was Stieglitz's first in the progressive vein. It demonstrates that, within a year and a half of assuming an editorial function, Stieglitz had been able to persuade his co-editors that science and art were not only co-purveyors of feeling, but were necessarily yoked together in an evolutionary sense. This indicates also that well before he emerged as a champion of avant-garde photography and art in America, Alfred Stieglitz had developed a forward-looking notion of what aesthetic achievement entailed.

It is fitting to conclude this discussion with a quotation from William M. Murray, a mathematician and photographer who was to write metaphysical, mathematical and psychological articles for Camera Notes. Murray expressed the crux of Stieglitz's art and science based philosophy in an address of November 1894, published in American Amateur Photographer the following year. There he stated:

It must be confessed that photographers, as a rule, do not look kindly on mathematical calculations of any kind....Indeed, some of our would-be artistic brethren seem to believe that the study of scientific symbols may trammel their genius for making good pictures, forgetting that art plus science must ever be greater than art minus science.64
NOTES

1. For example, the account in Terry, "Photographic Antecedents," pp. 75-87.


5. Greenough, "Published Writings," p. 20.


8. Ibid., p. 63.


11. Stieglitz to Fritz Goetz, 23 December 1914, YCAL.


13. These photos were chosen to illustrate Stieg-
litz's 1897 article "The Hand Camera--Its Present Importance," printed in AAP/PTA for 1897. Relevant images are A Bit Near Munich, Venetian Characters, From the Fields and A Venetian Well. None are dated, but as the locales resemble those he visited on his honeymoon in 1894, they probably date from that year. On the final page of the article the editor wrote, "In justice to the author we feel compelled to state that the reproductions of his illustrations give no idea of the originals" (p. 27).


15. The term "pictorial photography" has been widely used but poorly defined. In its narrowest sense it refers to Pictorial Effect in Photography, the book written in the 1860s by H. P. Robinson. In its widest sense, Nancy Newhall wrote, "Pictorial is still the word that best describes the kind of photography most of us are interested in--the making of pictures by photography, the expression of something within us that only photography can express" (Nancy Newhall, "What Is Pictorialism?" Camera Craft 48 [November 1941]:653).

Here, however, "pictorialism" is given a series of interpretations related primarily to Stieglitz, specifically Stieglitz in his most advanced aesthetic phases. In this chapter it is defined in a naturalistic context (and illustrated by Stieglitz's photographs of the 1890s in the next). In subsequent chapters it is used to indicate further developments Stieglitz achieved in his own work and promoted in that of others (for example, Steichen). Thus, when it appears in the context of Stieglitz's "aesthetic," Symbolist or "secessionist" phase (c. 1898-1904), it is placed within quotation marks.

As "pictorial" or "pictorialist" also occurs in many other writers' discussions and articles, some confusion in deciphering its significance is bound to occur. It is hoped that my sparing use of the term may serve to alleviate some of that confusion.


In an exhibition and book of 1972, art historian Wanda Corn attempted a definition of American Tonalism, which incorporated both painting and pictorial photography (specifically that of the Stieglitz group). She
cited critics of the period in order to codify her definition: tonalism involved setting a picture in an atmospheric envelope, and limiting that envelope to one primary tone or color. She also discussed poetic interpretations of this definition. Stieglitz, although interested in these ideas (he patronized them by commissioning articles written under tonalist premises), was more interested in what might be called the "tone of life" rather than Corn's tonal affectations. Granted that his photographs of c. 1900-04 evidence certain tonal affectations, these are never pushed to a degree of unnaturality. (See Wanda Corn, The Color of Mood: American Tonalism, 1880-1910 [San Francisco: California Palace of the Legion of Honor, 1972], pp. 1-25.)


18. That he mentioned relationships and simplicity reveals his indebtedness to Vogel and Mach.

19. William Innes Homer, Alfred Stieglitz and the Photo-Secession (Boston: Little, Brown and Company, 1983) p. 19. According to Homer, writing about Stieglitz's atmospheric photographs of New York City taken at the same time the latter wrote these articles, "Stieglitz's realistic treatment of urban subjects seems to presage the painters' imagery" (Ibid.).

20. See for example, "Labor and Capital--Impression" by William Dean Howells (1895), in Ellen Moers, Two Dreisers (New York: The Viking Press, 1969), p. 2. The example of Dreiser is apropos to Stieglitz's urban tonalistic photographs, discussed in Chapter Five.

21. Emerson cited this essay in his Naturalistic Photography (1889), which Stieglitz translated.


23. Stieglitz did not mention Nadar in his writings, but he did state that to photograph well one must know art in all of its forms. Interpreting this inclusive statement inclusively, I have assumed that Stieglitz, who practiced portraiture, knew the key photographic portraitists of the previous generation, of whom Nadar was one.

24. Stieglitz and Louis H. Schubart, "Two Artists'
Haunts," *Photographic Times*, January 1895, in *Photographs & Writings*, p. 179.


26. Louis Emile Edmond Duranty, "The New Painting," in *The New Painting*, p. 44. Another source for Stieglitz's interest in physiognomy, not yet examined, is the eighteenth century physiognomist Johann Caspar Lavater. Stieglitz included two quotations from Lavater in his Berlin "Extracts" (neither having anything to do with science).


33. Stieglitz, "Extracts." The Schopenhauer quote is not explicitly identified as his; the author's name is given simply as "S." The ideas are Schopenhauer's, so most likely it is indeed attributable to him.

35. Greenough, "How Stieglitz Came to Photograph Clouds," pp. 156 and 163, n. 11.


Recalling Stieglitz in his later years, his friend Herbert Seligmann stated:

The books must be read in the same spirit the paintings were looked at. That involved examining the relationship of things, of human beings to pictures, prior even to examining the relationship of one human being to another, in a scientific sense. Stieglitz said of himself that at heart he was a scientist (Herbert Seligmann, Alfred Stieglitz Talking [New Haven: Yale University Library, 1966], p. 113).


40. Ibid., p. 3.

41. For example, R. Catterson Smith, lecturing to the Birmingham, England Photographic Society (the talk was summarized for American Amateur Photographer in 1905) said, "Let us go back to the ideals of the old-time painters, and let us have a vision and seek to express it the best we can....the simpler the subject the wider is its application" ("What is Art?" AAP [1905]:54-55). Frederick Hart Wilson wrote in 1887 in The American Annual of Photography and Photographic Times Almanac, "The crying need of the photograph is greater simplicity....Do not let the bass of the accessories overpower the single clear, high note of the subject" ("'Less Matter and More Art,'" AAP/PTA for 1887, [1887]:115). James Burns, an Emersonian naturalist and president of the Edinburgh Photographic Society, addressed his group--and in an abstract readers of the 1902 Photo-Beacon thus:

Too often in our photographic work our subjects select themselves; this, however, is the fault of the photographer. A knowledge of the laws of composition is of essential value in selection....It is sufficient to produce a picture--never mind the means. If it conveys no message to us, if it tells no story,
gives us no pleasure, condemn it or pass by, but leave questions of process and other matters of technic out of consideration altogether ("Motive and Method in Pictorial Photography," The Photo-Beacon [1902]:239, 241).

42. Burnet began systematizing pictorialist principles in his 1860 manual Practical Hints on Portrait Painting (many photographers at this time were portraitists). Excellence in the genre, its pages taught, could be garnered only if one followed a set path. "Composition is the art of arranging figures or objects, so as to adapt them to any particular subject," he stated. Burnet enumerated four requisites to good composition: a story must be well told; there must exist good general form; there must be a proper effect of light and shade; and the whole must be susceptible to an agreeable disposition of color (John Burnet, Practical Hints on Portrait Painting [London: Virtue, 1860], p. 1).

Burnet's "practical hints" stressed geometry: he claimed that all the varieties of a picture emanated from the straight line and the curve. However, these devices were far from psychophysical, that is, meant to evoke correspondences with psychic states of the artist and observer. For Burnet, they were simply transcriptions of the regularities and order of nature. The artist was nature's student; his or her primary duty was to point out the "most interesting objects" and locate them "in the most prominent places" of his painting (Ibid., p. 3).


44. Hines, "Science and Art," AAP 12 (1900):269. Although Hines was not associated with Stieglitz, it is indeed possible that he may have been influenced by him. It is also true that such ideas were "in the air." On practical idealism in America, see this study, Chapter Eight.


48. It is noteworthy that when he was made co-
editor with F. C. Beach, Catherine Barnes Ward was listed as associate editor.


50. For example, George Davison, who wrote extensively for the journal in 1894, was a member of the Brotherhood of the Linked Ring, an elite society of British photographers. The purpose of the Linked Ring was to organize the most serious and most genuinely artistic workers from the ranks of amateurs then exhibiting. Stieglitz was to become the first American elected to this organization.

51. J. S. Bergheim, "Figure Studies," *AAP* 5 (November 1893):549-61. In his editorial comments for this issue, Stieglitz stated that this article was the "most interesting and at the same time, most valuable paper ever written on one of the most fascinating branches of art photography" (Ibid., p. 574).

52. William Gill, "Certain Aspects of Modern Photography," *AAP* 6 (1894):93-96. Nothing is known about William Gill, but his statements indicate some familiarity with Bergson's metaphysical view of creation. For example, Gill's comment "It is the artist's business to enter into the mind life of nature...and to express the laws of that life in his work" (Ibid., p. 94) recalls Bergson's evaluation of art in his 1900 book *Laughter*, to wit: "So art...has no other object than to brush aside the utilitarian symbols...everything that veils reality from us, in order to bring us face to face with reality itself" (Henri Bergson, "What is the Subject of Art," *Camera Work*, no. 37 [January 1912]:24).


54. Dallett Fuguet, "Truth in Art," *Camera Notes* 3 (April 1900):188. It was Fuguet's belief that photographic technique and scientific instruments should be placed on a lower plane than will, knowledge, power and perception. However, he was not averse to equating science and art as creative disciplines, "for again and
again the history of art has shown conclusively that two or more independent workers have hit on very similar combinations of ideas, just as in science inventors have arrived at similar results while entirely ignorant of each other's labors" (Fuguet, "On Originality," Camera Notes 3 [January 1900]:113; hereafter referred to as CN).


57. When Stieglitz wished to instigate controversy, he issued directives such as "I shall throw a bomb" (Norman, American Seer, pp. 71-72).


60. Ibid., pp. 252, 253. Davison appears to have confused "bedazzlement" with moonlight vision, according to which objects are perceived as dimly lit aerial masses. However, he also wrote, "Who has not felt the instant impression of the beauty of a scene which has quite suddenly burst upon the view? The artist needs no focusing of details. The glorious effect of light and color and form is immediate, and the general impression is preferred to the detailed investigation" (p. 253). On Helmholtz and the movements of the eye, see "Recent Progress," in Warren and Warren, pp. 72.


CHAPTER FIVE

ALFRED STIEGLITZ FROM 1890 TO 1898, PART II: THE NATURALISTIC SERIES

Although Alfred Stieglitz's photographs have been brought into the preceding discussions to clarify his emerging philosophy of art and science, at this point it seems fruitful to apply Stieglitz's aesthetic point of view directly to his own works of this period.

It has been noted that by the late 1880s Stieglitz had begun submitting his photographs to artistic competitions, and that they were highly regarded. *Sun Rays--Paula--Berlin* of 1889 (Fig. 3) and *Italian Mason Bellagio* of 1887 are noteworthy for an acute sensitivity to the possibilities of contrast and gradation in photographic values, for sensitivity to naturalism of atmosphere and reflected light, and for their adherence to a style of genre that was concurrently being practiced by European and expatriate American painters in various centers of northern Europe. These photographs are more tours de force of technical achievement than documents of novel perceptions and conceptions, a fact *The Card Players* (1887), an exercise in composition and tone after Hermann Vogel, easily demonstrates (Figs. 8 and 9). However, certain outstanding images, such as *The Approaching Storm, Leone*, and *Stones of Venice--Chioggia*,

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(Figs. 12, 6, and 7), are exceptional in that they do
demonstrate novel ideas: perceptual rigor in the first
image, and economy of thought (in Mach's term,
Denköonomie) in the last two.²

Notwithstanding these early achievements, Alfred
Stieglitz's notoriety in the amateur photography circuit
of c. 1890 rested primarily on his genre work, and it was
with genre subjects that he initiated much of his photo-
chemical experimentation. However, a significant shift
of focus appeared in Stieglitz's work after he returned to
the United States. This change in perspective was
precipitated both by the change of place—-from Germany to
New York, and by a change in his career status—-from
student to professional photoengraver and amateur photo-
journalist.

Stieglitz's biographers have made much of his father
Edward's decision to force his son into the Heliochrome
(later Photochrome) Engraving Company, a decision that
led to a period of intense depression and effectively
curtailed Alfred's freedom until 1905 when he turned over
his shares to his partners.³

While it is true that the younger Stieglitz consid-
ered his departure from Europe an untimely one (he might
otherwise have worked with Eder), and that he hated the
administrative functions he was required to perform,⁴ he
did not find his regime in New York to be an impediment
to creativity. Working in the photoengraving field was a challenge he not only accepted, but had himself initiated as early as 1888,\textsuperscript{5} then continued in a laboratory of his own devising.\textsuperscript{6} Working in the field of photojournalism and on the amateur lecture circuit were opportunities for him to hone his investigative and communicative skills, develop his ideas, and associate himself with other photographers who were interested in philosophical links between photography, art, and science.

Just as science had fueled Stieglitz's early experiments in composition, lighting, mass, texture, and atmosphere (not to mention his naturalism and materialism), scientific investigation and philosophies were now to fuel his first major artistic statements, the series of New York thoroughfares he shot in 1893-98 and his photographic record of his trip to Italy and northern Europe in 1894.

This is not to say that the images dating from the late 1880s are not scientific, but compared with those that will be examined in this chapter, they are oriented more to problems of technique and design than to issues and ideas.

The major themes of these new compositions concern three types of vision that may be characterized as materialist, atmospheric, and relational. These were artistic themes, thus requiring a knowledge of works of
art. They were also perceptual themes, requiring a re-evaluation of Hermann von Helmholtz's perceptual science. Even more importantly, the relational component of these images indicates that Stieglitz reevaluated Ernst Mach's notions of science at this time. The intent of the following discussion is to make Alfred Stieglitz's inherited aesthetic notions and new, expansive viewpoint clearer.

Before doing so, however, it is illuminating to set Stieglitz's work in the perspective of late nineteenth century photographic history and photographic art.

The first daguerreotypes and calotypes, produced in the years after 1839, astounded a public attuned to historical, genre, portrait, and landscape painting by their non-painterly but magnificently truthful profusion of detail. As daguerreotypes could not be successfully retouched and as photographers were by and large interested in exploring the possibilities of their medium, manipulation was not practiced in these early years. The masters of the first generation of photographers, among whom were the portraitists David Octavius Hill and Robert Adamson, (later championed by Alfred Stieglitz) achieved masterly results by "straight"--purely photographic--means.

The introduction of the collodion or "wet plate" process (a process designed to make the production of
photographs economical and of high quality), combined with the development of what might be called a "salon" mentality among art-oriented photographers, changed all of this. As described by Frederick Scott Archer, inventor of the process in 1851, the collodion or wet plate method could lend itself to innumerable photographic images or "drawings."\(^9\) After the plate was coated with collodion and silver nitrate, it was exposed, then developed as a plate/emulsion unit. The film layer, however, was then removed from the plate, and fixed and washed in the darkroom. Photographers were enthusiastic about this process, which liberated them from paper negatives (the basis of the calotype process) and from handling cumbersome glass plates (required for the albumen process).

Certain photographers found the aesthetic limitations of collodion images—for example, blue skies were recorded on the emulsion as a solid tone; the landscape print appeared with a white, cloudless sky—intolerable. In their darkrooms they devised methods whereby separately exposed negatives (say, for sky and landscape) could be combined to make one picture. They also found combination printing useful in their allegorical work.\(^10\)

H. P. Robinson and the Swedish photographer Oscar G. Rejlander, both of whom were also painters, were so successful in combination printing that they "out-Sa-
loned" the allegorical salon style of their day (Fig. 16), represented by painters such as Thomas Couture.11 Basking in the light of these triumphs, Robinson felt confident in advising beginning photographers, "Any 'dodge, trick, and conjuration' of any kind is open to the photographer's use...."12

Thus emerged the first "pictorialist" aesthetic, reinforced by a number of treatises committed to its defense. These included standard aesthetic texts written on both sides of the Atlantic, by Robinson, his mentor the British aesthetician John Burnet, the British graphic arts historian P. G. Hamerton, the American artist, art, and photography critic Henry Rankin Poore, and the American professor, aesthetician, and photography critic Denman H. Ross.13

The tone for these treatises was set, as might be expected, in the public arena. A number of critics and commentators who attended the annual exhibitions of the Photographic Society of London (founded in 1853), compared photography with the graphic arts and encouraged photographers to deal with themes appropriate to an academic painter or printmaker. "For photography," they stated, "there are new secrets to conquer, New Madonnas to invent, new ideals to imagine. There will be perhaps photography Raphaels, photograph[y] Titians."14

The foregoing comment intimates the presence of
another school of thought philosophically related to, but formally different from the pictorialist school of Robinson and Rejlander. This was the Pre-Raphaelite movement, a British offshoot of Pre-Raphaelite painting.

Following the examples set by Dante Gabriel Rossetti and John Everett Millais, photographers such as Ronald Leslie Melville and Eveleen Myers posed models in historical costume in the guise of mythical, biblical, and sainted figures (Fig. 17). Intent on reviving Central Italian, Early Renaissance styles of painting and adapting them to photography, they strove for precise outlines, pristine details, overall clarity of focus, and minimal background distractions. For them the inherent limitations of the collodion process were not limitations at all. Because an articulated sky could easily destroy the clarity of a well-chosen landscape, they exposed for the latter, allowing the former to go blank (Fig. 18).

The acknowledged theoretical mentor for this group of photographers was the critic, painter, and occasional photographer John Ruskin. Ruskin combined a love of the particulars of nature with a desire both to make what he believed were scientific discriminations and to see the relationship of the facts of nature to Deity. His Elements of Drawing, published in numerous editions in England and America, was predicated on "obtain[ing], first, a perfectly patient, and, to the utmost of the
pupil's power, a delicate method of work, such as may ensure his seeing truly." For Ruskin, seeing truly was seeing in perfect detail, and science was knowledge of geology and meteorology.

Following Ruskin, the Pre-Raphaelites considered themselves catalogers of natural fact. Content to "peep and botanize," they set up their cameras in locales where they could study a particular type of topography, a particular rock formation, a stand of deciduous trees or cluster of ivy. A perusal of typical landscapes of the time makes it clear that their intent was not to isolate a problem, analyze it, come to a conclusion about its nature, then make synthetic judgments based upon this research (the method advocated by Alfred Stieglitz), but to reproduce a particularly moving fragment of God's creation. Despite P. H. Emerson's avowal to the contrary, the Pre-Raphaelites were not scientists; they were amateur naturalists on holiday.

In point of fact, however, they did isolate nature for a particular purpose. As has been suggested, that purpose was religious and ethical. Here British evolutionist Thomas Huxley provides cogent theoretical support.

According to Huxley, evolution was inexorable: various species would emerge only to become extinct and, despite the power of human feeling, the struggle for
existence would proceed wholly according to Darwinian natural selection. Counteracting that inexorable process was ultimately impossible, Huxley admonished, but temporary hiatuses within it could indeed be created. These were gardens, by his definition works of art or artifice designed to select and maintain just those species of life deemed useful or beautiful by the gardener.19

For Huxley and British photographers imbued with his ideas, for example Thomas Keith (Fig. 19), the most moving images were those that banished undesirable elements of nature, keeping only those elements that could be maintained under strict directorial control; they were, in effect, hothouses of the imagination. Massive geological formations, although fascinating from a naturalist’s point of view, could be photographed only as projections of deep fear and dread. "stranded, we might feel, on the barren shores of rationalism, searching for a sign from the Infinite" (Fig. 18).20

As will be demonstrated in the remainder of this chapter, Alfred Stieglitz rebelled against both the fussy manipulations of the combination printing school and the equally fussy 'botanizations' of the Pre-Raphaelites. To him such images must have appeared retrodataire because they were constrained within academic strictures of painting and unscientific strictures of morality. Furthermore, they artificially limited the potentialities
of photography as creative and technological expression, and photography for Stieglitz was an eminently elastic and plastic discipline.\textsuperscript{21}

If indeed he read works by Huxley at this time ("Evolution and Ethics," the lecture in which the garden metaphor appears, dates from 1893), he would not have subscribed to the philosopher's metaphor of the hothouse garden. Designed to combat nature, it was diametrically opposed to nature as Stieglitz understood it, namely, as a dynamic, experiential meld of physical fact and physical sensation.\textsuperscript{22} Moreover, during the 1890s Stieglitz was to focus more and more on urban rather than rural "nature," precisely because he was aware that the turn-of-the-century American city was the center of technological dynamism and intense intellectual controversy. (This issue is discussed in Chapter Seven.)

Far from considering himself an alien in New York City, Alfred Stieglitz sought to incorporate its structures and activities in a new language comprehensible both to its interpreters and himself. Although certain of his colleagues could not fathom what he meant, others did understand and proceeded to use his new language to create powerful urban metaphors. Sadakichi Hartmann, one of these interpreters, was to be an important influence on Stieglitz at a crucial juncture of his career.

Due to Stieglitz's own narration and comments made
by others concerning his New York images—especially the
well-known duo Winter--Fifth Avenue (Fig. 20) and The
Terminal (Fig. 98), we know that these photographs
resulted not just from the fortuitous taking and printing
of perfect negatives which captured the atmospheric
lushness of singular events, but from a more complex set
of occurrences.23 Overriding these was the concept of
the urban series, a challenging theme not only because of
its interpretive possibilities, but also for the excuse
it offered Stieglitz to see what his hand camera could
do. Also, motivating the production of these images was
Stieglitz's psychological ideal, namely rendering the
sensations of people, objects, and natural conditions
that he had captured and "developed" internally some time
before the actual conditions suitable for photography
occurred.

Just as evaluations of Stieglitz's photographic
education must take the prejudices of his later narra-
tives into account, late accounts of his photographs of
the 1890s must be clarified and corrected where they
contradict what Stieglitz had to say at the time he took
them. It should certainly be noted that Stieglitz
described Winter--Fifth Avenue to Dorothy Norman in terms
recalling Hermann von Helmholtz's notion of perceptual
intensity:

On Washington's birthday in 1893, a great blizzard
raged in New York. I stood at the corner of 35th Street and Fifth Avenue, watching the lumbering stagecoaches appear through the blinding snow and move northward on the Avenue. The question formed itself: Could what I was experiencing, seeing, be put down with the slow plates and lenses available? The light was dim. Knowing that where there is light one can photograph, I decided to make an exposure.\textsuperscript{24}

In his writings Helmholtz had specified that one's knowledge of the external world was gained through the accumulation of perceptual data and by the conscious forming of tactile and retinal patterns. Rapidity of movement, according to Helmholtz, elevated the human eye above the most refined and calibrated optical instrument.\textsuperscript{25} It appears that Stieglitz's reevaluation of Helmholtz's perceptual findings and his own perceptual conclusions, reached during chilly meanderings on the avenues of Manhattan, convinced him that photographic focus could be an equivalent of the eye's continually changing focus.

Recalling these events in the 1940s, however, Stieglitz preferred to make seeing more the equivalent of a spiritual awakening than a physical fact. Pelted by snow, squinting just to see, and attempting to align the slush-covered street in his viewfinder on February 22, 1893, in actuality he sought to recapture with his camera the same physical force he was experiencing. As he wrote in 1897:

The one quality absolutely necessary for success in hand camera work is Patience....hours of patient
waiting. My picture, "Fifth Avenue, Winter," is the result of a three hours' stand during a fierce snow-storm on February 22d, 1893, awaiting the proper moment. My patience was duly rewarded. Of course, the result contained an element of chance, as I might have stood there for hours without succeeding in getting the desired picture.  

It is important to reiterate that in the mid-1890s Stieglitz's enthusiasms were technically as well as philosophically grounded. A wonderful invention in the days of cumbersome, heavy cameras and tripods, the recently invented hand-held camera enabled photographers to be more mobile, more selective (a dozen or more exposures could be taken in rapid succession), more secure (certain models were waterproof), and more surreptitious in their search for candidness, as well as more cognizant of the experimental possibilities garnered thereby.

In his 1897 essay, "The Hand Camera--Its Present Importance," Stieglitz described how a hand camera with a shutter working at a speed of one-fourth to one-twenty-fifth of a second could offer unlimited possibilities for the representation of motion. It might also enable its owner to set up a shot in "adverse and trying circumstances," such as a snowstorm, and to wait for "the moment in which everything is in balance." The sole criterion for success in hand camera work, Stieglitz averred, was the experimentalist's perseverance in these, his self-appointed tasks.
Notwithstanding his interest in expanding the possibilities of hand camera work, Stieglitz was not standing in a snowstorm just to see if his camera would work even if drenched. What he was after was acute perceptual awareness, a heightening of his senses of sight, touch, and perhaps even taste.

Helmholtz had suggested that the only way to render an artifact of vision accurately was to immerse oneself in its glow.\textsuperscript{28} To do this Stieglitz focused not on the carriage and driver, as a recent interpretation has suggested.\textsuperscript{29} but on the paths of driving snow and the tracings formed around and upon the approaching vehicle. These tracings he understood as equivalents of his vision, and for Stieglitz it was the equivalent which mattered. As he recounted to Norman:

Later, at the New York Society of Amateur Photographers, before my negative was dry, I showed it with great excitement. Everyone laughed. "For God's sake, Stieglitz," someone said, "throw that damned thing away. It is all blurred and not sharp."

This is the beginning of a new era, I replied. Call it a new vision if you wish. The negative is exactly as I want it to be. What I was driving at had nothing to do with blurred or sharp.\textsuperscript{30}

In this case the later account essentially dovetails with the earlier:

I remember how upon having developed the negative of the picture I showed it to some of my colleagues. They smiled and advised me to throw away such rot. "Why, it isn't even sharp, and he wants to use it for an enlargement!" Such were the remarks made about what I knew was a piece of work quite out of the
ordinary, in that it was the first attempt at picture making with the hand camera in such adverse and trying circumstances from a photographic point of view (italics mine).\textsuperscript{31}

In her dissertation on Stieglitz's photographs of clouds, the "Equivalents" of the nineteen twenties and thirties, Sarah Greenough traced Stieglitz's notion of the Equivalent through his photographs, published statements, and editorial work of the preceding forty years, concluding that it was a Symbolist notion, entailing the direct transmission of spiritual states of being into visual form. For Stieglitz, she argued, photography was the plastic equivalent of intangible modes of experience, and things were less important than "pure emotion."\textsuperscript{32} But she also quoted Stieglitz as saying:

[If the photographer] is actually searching for the truth...he can get the spirit of [an object] through the camera as well as the painter can through paint....[someone] who knows how to really photograph [can] channel the impulses of human beings and register the objective world directly.\textsuperscript{33}

This is less a Symbolist (i.e., mystical and ethereal) statement than a naturalist one, although it had important ramifications for Stieglitz in the years around 1910, when he correctly assessed Cézanne's and Picasso's art as composed of elemental objects.\textsuperscript{34} Again, the theories of Helmholtz seem to have been Stieglitz's key source as he began formulating photographic "equivalents" of vision.

Writing about painting, Helmholtz claimed that the
artist's task was indeed to register the objective world directly, not "like the birds who pecked at the painted grapes of Apelles," but in such a way that a "visual impression" or a "picture" (recall Stieglitz's differentiation of pictures and photographs) resulted. This picture, Helmholtz went on, should be so vivid and powerful that the real objects represented are actually felt, and the effect of their illumination compellingly reproduced.\(^35\)

The "effect" (in Stieglitz's sense of the term) of Winter--Fifth Avenue is nothing less than "bedazzling" and "tonal," all wrapped up in one. This is rendered even more clear when the exhibition print is compared with a print made from the original, uncropped negative (Figs. 20 and 21). The latter is tonally interesting, but diffuse--spotty and jumpy in incident, like Robert Henri's nearly contemporary painting New York Street in Winter (Snow in New York) (1902, Fig. 22). The former is tonally intense; by cropping in left and right, Stieglitz was able to isolate the dark yet glowing mass of the stagecoach and driver within a "cyclone"\(^36\) of snow (although it must be admitted that only the falling snow is "dazzling").

Other images produced by Stieglitz during this decade, such as Reflections--Night, New York (1896-97), The Savoy Hotel, New York (1898), and Fifth Avenue on a
Rainy Night (c. 1898) (Figs. 23 and 24), also demonstrate the physical and perceptual base of his new vision. The brilliantly distinct, rainy reflections track the relational patterns that Stieglitz’s penetrative and informing eye perceived in adverse conditions. They do not describe a scene, but transmit physically reproducible sensations or signs of its effect upon an extremely sensitive perceptual apparatus.37

Moreover, the intense darks and yellowish highlights in The Savoy Hotel render Helmholtz’s notion of moonlight vision both palpable and penetrable. It is worthwhile to cite Helmholtz one more time with regard to this perceptually governed phenomenon:

The brightest parts of the objects are given in these pictures in bright, luminous yellowish colours; but the shades toward the black are made very marked, so that the darker objects are almost lost in an impermeable darkness. But this darkness is covered with the yellowish haze of powerfully lighted aerial masses...the very marked gradation of the shadows, the contours of the...figures, are made extremely prominent....these pictures give particularly bright and vivid aspects of the objects.38

That these Helmholtz-influenced ideas were not yet discovered by Stieglitz’s artist colleagues who also found inspiration in Manhattan and its environs, is shown by comparing Stieglitz’s Snapshot—In the New York Central Yards (1903) with Childe Hassam’s painting Cab-Stand at Night, Madison Square (c. 1893, Figs. 26 and 27). While the railway tracks in the Stieglitz photo are artifacts
of vision, equivalents of his sighting, following, and physically experiencing his subject, the snowy tracks in the Hassam are elements of deft design. Stieglitz rendered nature not as Hassam, an illustrator, saw it, but as the perceptually astute observer isolates it.39

Art critics of the nineties (excepting George Davison) seem to have been as unaware of (or oblivious to) Stieglitz’s Helmholtzian vision as painters. The critic Sadakichi Hartmann, who generally admired Stieglitz’s work, called The Savoy Hotel a "complete failure" because it was "utterly spoiled by the attempt of lending it a color effect, a cheap yellow monotony which has robbed the otherwise excellent picture of all its delicacy and vibratory force."40

However, Theodore Dreiser, who wrote on art occasionally for New York publications, understood what Stieglitz was doing. Writing about the folio Picturesque Bits of New York which Stieglitz published in 1897, he found "fine feeling," "delicacy of treatment," "targeted vision and capping it all, "the clear, crowning reality of the thing."41

Moving beyond Helmholtz, Stieglitz believed that nature should be interpreted as the conceptualist constructs. In his New York and European images of this decade, such as A Blockade, New York (c. 1893, Fig. 28), the work is synthesized not so much by the light as by
dynamic, abstract composition. Paul Rosenfeld described this type of work as having "the characteristically Stieglitzian form," noting that "the shapes, lines, and tones constitute two great major complexes, one wedge-like, the other complementary to it."42

Had Rosenfeld plumbed deeper, he might have described other "characteristically Stieglitzian" devices as well: the gridding of the composition into interrelated tonal rectangles (as seen in Laundry, Venice and A Street in Bellagio, Fig. 29, both 1894), or the juxtaposing of shapes and forms literally distant from one another to flatten space into a grid of triangles and rectangles (Centies Slip, New York of 1893 and The Subway Entrance, c. 1896, Figs. 30 and 31). As noted, geometric abstraction was not new to Stieglitz; he had experimented with it in the previous decade. In the mid-1890s, however, he deemed it worthy of concerted investigation. Why this might be so can be traced to a source in Mach.

In 1895 Stieglitz wrote a cogent description of his by-then well-developed photographic philosophy:

...Art knowledge depends upon the study of nature in its aggregated relations. In a good picture these are judiciously preserved...all are true with relation to each other. Such a representation of Nature may not satisfy the mind that has recorded some isolated facts...but to him who has kept his eyes open to Nature's works in their harmonious unity, it will be a revelation of their author.43
Although the scientific materialist Thomas Huxley could have been one of Stieglitz's sources as he was formulating and picturing this concept of related natural forms, Mach (to whom his ideas were more closely affiliated in general) was probably his source for the more advanced notion of related philosophical ideas. When Stieglitz stated (albeit in a romantic vein) that he was analyzing not the material or perceptual facts of a scene, but the comparative values he found, then interrelated in a construct of his own devising, he was echoing Mach's neo-romantic philosophy of sensation. That philosophy, described in Mach's text *Analysis of Sensations* of 1886, was popularized and expanded at the time Stieglitz was taking his New York and European reductive, experientially-premised photographs.

In 1895, Mach published his *Popular Scientific Lectures*. Several of these contain material that would have been interesting to Stieglitz, but the one entitled "On the Principle of Comparison in Physics" is particularly relevant to the young photographer's relational aesthetic.

According to Mach, phenomena could be described either indirectly or directly. Indirect description would be an elaborate process involving the comparison of one phenomenon with another, say, light to wave motion or electric vibration. This thought process Mach compared
to the process of erecting a building: architecture does not just happen, it requires stones, mortar, and scaffolding. On the other hand, direct description would be a simple report of a phenomenon using abstract or conceptual implements. Continuing his architectural metaphor, Mach also compared direct thinking to a completed building, "bereft of unsightly scaffolding." It was his intent that direct or abstract description should replace indirect description. For Mach, thinking abstractly was tantamount to thinking conceptually and dynamically. Conceptual thought was a constructive activity involving the senses, the "phases of the senses" (such as color and form), muscles, and imagination. It was, in short, the abstract apprehension of facts.

Whether or not Stieglitz read Mach's lectures, there can be no doubt that his new concept of photography as series paralleled the Austrian physicist's philosophy of science, which in all likelihood he had already investigated in Berlin. As Stieglitz recalled:

From 1893 to 1895 I often walked the streets of New York downtown, near the East River, taking my hand camera with me. I wandered around the Tombs, the old Post Office, Five Points. I loathed the dirty streets, yet I was fascinated. I wanted to photograph everything I saw. Wherever I looked there was a picture that moved me—the derelicts, the second-hand clothing shops, the rag pickers, the tattered and the torn. All found a warm spot in my heart. I felt that the people nearby, in spite of their poverty, were better off than I was. Why? Not because of a sentimental notion. There was a reality about them lacking in the artificial world in which I
found myself and that went against my grain. Yet it was my business experience that drove me into New York's streets and so into finding myself in relationship to America.

I loved the sloops, the clipper and other ships, with their protruding bowsprits and their sails, as they came in from the sea bringing fish and other cargo. I loved the signs, even the slush, as well as the snow, the rain and the lights as night fell. Above all there was the burning idea of photography, of pushing its possibilities even further (italics mine).48

Stripped of its later romanticized trappings, Stieglitz's idea for a comparative photographic series reflects the Machist process of indirect description, whereas the main thrust of his series, the idea of creating images of crystalline and abstract purity, reflects a dynamic, interactive process of direct description. This indicates some indecision on his part. Not until 1907 would Stieglitz create an image whose philosophical premises adhered to the economical exigencies of direct description. Furthermore, his portraiture of this period still hews to mid-century naturalism and materialism.47

Stieglitz's psychological reason for photographing these and other subjects remains to be discussed. According to the critic Roland Rood, who wrote for Camera Work, Stieglitz waited four years for a certain combination of people, sky, and light to appear on Fifth Avenue in order to "make the picture."48 This period of anticipation, however long it lasted,49 indeed seems to have
been premeditated, as Stieglitz's lengthy description of his New York expeditions emphasizes.

One critic has noted that, in these passages, Stieglitz revealed "an incipient theory of mass America, a kind of 'lonely crowd' phenomenon in which distant and detached relationships come to be the only satisfying kind." This is a strange assumption, seeing that Stieglitz actually claimed kinship with the physical reality he experienced and rendered on film. His musing reveals not the thoughts of a lost young man, but the thoughts of a neo-romantic, committed to the formation of new concepts through appeal to memory, past and present experience. Most importantly, Stieglitz's indebtedness to Mach's dynamic and idealist theories of science is exhibited as well.

According to Mach, only intense interest in an object or idea could make possible such unexpected combinations of thought as those revealed to Stieglitz. The scientist possessed by an idea would obtrude it into every experience. A scientist who worked in this way was also an artist. As Mach wrote in 1895 in his popular lecture "Accident in Invention and Discovery," "[These] men...obeying their inner impulses, make sacrifices for an idea instead of advancing their material welfare." In 1919, writing on his own contribution to the history of photography, Stieglitz echoed Mach when he stated:
Photographing is a difficult thing to accomplish. That is if an emotion—a feeling generated by, born of, intense experience—is to be put into form... the medium [must] do what one feels. To be able to do that, one must actually feel something intellectually... and the metier must have become an inherent part of oneself.\textsuperscript{52}

In the years 1890–98, Stieglitz evolved his views from naturalist and materialist to neo-romantic philosophies of science, although at this time the three co-existed in a somewhat uneasy union. The instability and indeterminacy of this philosophy, in which equal weight was given to naturalism and to an as yet imperfectly realized conceptualism, was revealed in the following account by Dreiser of Stieglitz's picture The L in a Storm (c. 1894, present whereabouts unknown), written in 1899:

[The print] was striking enough, and which, with most photographers, would have ended the matter. Not so with him. Small as the plate was, it contained much that was unessential and weakened the composition. Accordingly, all this was cut out and an enlarged transparency made of the part which was to be kept,—about half of the original. In the development of this, and the still further enlarged negative, much care had to be taken and many plates used. The contrast had to be reduced, parts held back, and others brought forward. In fact, everything had to be done which could, by purely photographic methods, tend to convey the impression produced by the original scene.... The range of tone had been modified so as to make the falling snow more prominent, and a couple of girders in the foreground had been removed. There was no retouching, for that is something which no pictorial worker will countenance (italics mine).\textsuperscript{53}

Neil Leonard has noted that the last phrase italicized here indicates a change of sensibility on Stieglitz's part; it presages his conversion to aestheti-
cism, which would become evident in the years around 1902.54

Leonard failed to notice three important issues: first, that Stieglitz's "aesthetic period" would be temporary—he would clarify his conceptualism by reevaluating his ideas and by even more "pure photographic methods" (the use of the entire and unmanipulated negative) in the years around 1907—secondly, that this crucial, transitional juncture for Stieglitz was actually a plateau along his ascent to a Machist view of photographic art, and thirdly, that these concerns were all premised on scientific investigation.

Removing a couple of girders was a viable proposition to Stieglitz not only because they marred the beauty of the composition, but because he had perfected a photochemical process (probably gum bichromate printing) that excited him and spurred him to continued experimentation.55

That experimentation was Stieglitz's key rationale at this time was suggested by Dreiser in the passage quoted above. The L in a Storm, he wrote, was developed locally. As early as 1892 Stieglitz recommended local development in order to "bring out more detail in a portion that is slightly under-exposed." Local development, he believed, was just one aspect of experimental printing, albeit the one which made photographic process-
ing as elastic as possible.\textsuperscript{56}

Notwithstanding his reorientation to aestheticism in the years 1898-1904, a reorientation attributed here in great part to Stieglitz's photo-political involvements, it is crucial to an understanding of Stieglitz's science-based aesthetic to know that he remained first and foremost an experimental, empirical researcher.

If a particular developer or plate proved itself to be difficult to manage or defective, Stieglitz worked on it (or substituted another) until the process in question became manageable and simple to use. He advocated use of platinum printing not primarily because it was the method preferred by artist photographers (although that was of course one factor), but because it was "undoubtedly the simplest and quickest."\textsuperscript{57} Any number of platinotypes equal in quality, he claimed, could be made from a single negative. The photographer need only determine the proper time of development; the rest was purely "mechanical."\textsuperscript{58}

These are not the words of an aesthete who, in order to mystify the process of creation, would prefer to cover up his tracks or, as F. Holland Day would do, disavow the technical factor completely.\textsuperscript{59} Stieglitz's training as an advanced laboratory researcher and photo-chemical technician is the continuum of his photographic career and his philosophy.
By 1898, Stieglitz had worked his way through major trends in nineteenth century thought. His idealism, derived initially from youthful readings in German romantic literature, was strengthened, but redirected through the experimental philosophy of A. W. Hofmann, which combined philosophical and practical tenets. At the same time that he was involved in German laboratory science, he was absorbing mid-century scientific theories of naturalism and materialism, and echoing them in his own criticism and photographic work. Through a process of reflection and experimentation, he came to the conclusion that these ideas were not as potent as the personal ideal he felt should govern his work, a neo-romantic ideal predicated upon form, sensation, innovation and targeted scientific investigation and given a cogent theoretical framework by Ernst Mach. Although he did not fully accept these radical notions at this time, the seeds had been planted for an idealist and abstract revolution of art and aesthetics, Stieglitz's contribution to the modern art movement in America.

As described in succeeding sections of this study, what attracted writers to Stieglitz's work in the late 1890s were his newly formed experimental ideals. Stieglitz's scientific ideals also furnished the framework for the Photo-Secession after 1904. In the following chapter it will be seen that Stieglitz's progressiv-
ism and scientific rigor temporarily faded out of print as "secessionism" claimed his interests and reoriented his photography and critical focus. It will also be seen that during this period he engaged in complex photomanipulative processes, and designed an extensive, impressive second laboratory of photochemical research, on the Hofmann model. In Camera Notes, the journal he established under the auspices of the New York Camera Club in 1897, he succeeded in combining advanced aesthetic ideas with reports of advanced photochemical research. The period 1893-1904, then, may be considered a third rapprochement of art and science achieved by Alfred Stieg- litz.
NOTES


2. A Street in Sturtzing, the Tyrol of 1890 (Fig. 81) is proto-Cubist in geometrical complexity and organization.


6. As stated above, Stieglitz believed three-color printing to be the key problem still to be solved before photography could come into its own.


8. Large areas of sky in calotype negatives, however, were commonly painted black so that they would print with an overall uniform tone.


10. Allegories were represented in photography from the early 1840s.

11. Rejlander's most famous work, The Two Ways of Life of 1857, was purchased by Queen Victoria, who also was an amateur photographer. It was praised as "a magnificent picture, decidedly the finest photograph of its class ever produced" (Beaumont Newhall, 4th ed., p. 60).

13. Key texts not previously mentioned in this study are Hamerton’s *Thoughts about Art* (1880), Poore’s "The Avoidance of the Ordinary," (AAP, 1906), his *Conception of Art* (1913), Ross’s "How Design Comes into Photography," (Photo Era, 1900), and his "Design as Science" (Proceedings of the American Academy of Arts and Sciences, 1901).


15. In his book *The Pre-Raphaelite Camera*, Michael Bartram includes Robinson and Rejlander in the movement because their ideas were similar. Here I differentiate them purely on the basis of form, so as to make a case for the fundamental change in aesthetics that Stieglitz led.


18. "[Theirs is a] state of mind which delights in a wealth of clearly-cut detail. The scientific photographer wishes to see the veins in a lily-leaf and the scales on a butterfly’s wing" (Emerson, "Science and Art," 1889, in Bunnell, p. 11).


20. Bartram, p. 84.

21. As far as I know, Stieglitz, unlike Emerson did not comment on Pre-Raphaelite work directly. But as his work and philosophy is so diametrically opposed to those photographers’ work and ideas, it is inconceivable that he would feel otherwise. Perhaps he felt Emerson had effectively shut the door on that issue, and he needn’t comment further.
22. According to Cyril Bibby, Huxley was "nearer to some of the medieval schoolmen than to many modern liberals" (Bibby, p. 139).


24. Stieglitz, quoted in Norman, American Seer, p. 36.


27. Ibid., pp. 24, 25, 26.


30. Stieglitz, quoted in Norman, American Seer, p. 36.


34. In his book The Hieroglyphics of a New Speech, Dijkstra has effectively compared Stieglitz's to the Imagist and related Cubist aesthetic on the following common grounds: direct treatment of the "thing," an attempt to render the inner constitution of objects as "plastic," economy in presentation, and freedom from established rhythmic patterns (Dijkstra, pp. 24-25). Although Imagism does not figure in this study, it is worthwhile to acknowledge a similarity in philosophy between it and the elementalism of Mach, which of course this paper is about.

35. Helmholtz, "Relation of Optics to Painting," pp. 139-40, 151.


37. Stieglitz described Icy Night, New York (Fig.
25) to Norman as follows:

I put on three layers of underwear, two pairs of trousers, two vests, a winter coat and Tyrolean cape. I tied on my hat, realizing the wind was blowing a gale, and armed with tripod and camera—the latter a primitive box, with four by five inch plates—I stole out of the house.... The gale blew from the northwest. Pointing the camera south, I focused. There was a tree—ice-covered, glistening—and the snow-covered sidewalk. Nothing comparable had been photographed before, under such conditions" (Stieglitz, quoted in Norman, American Seer, p. 44).


39. A similar comparison can be made utilizing Stieglitz's and Hassam's views of rain-soaked urban pavements. Whereas in Wet Day on the Boulevard (1894) Stieglitz paid attention to the rain-soaked pavement and the tracks that the eye takes to cross it, in Rainy Day, Columbus Avenue (1885) Hassam concentrated on one elegantly costumed driver; in his painting the pavement functions merely as a foil, albeit a superbly painted one, for the coaches passing by (for the Hassam see Jennifer A. Martin Bienenstock, "Childe Hassam's Early Boston Cityscapes," Arts 55 [November 1980]:168-71 and Fig. 2).


41. Moers, p. 12. As she has noted, Dreiser wrote in a similar manner. Moers has compared his novel Sister Carrie to Winter—Fifth Avenue in that both dealt with the living reality of blizzards. However, she has also placed both Dreiser and Stieglitz in the context of an American literary phenomenon that she calls "the blizzard." Other writers she has compared them to include Stephen Crane and Willa Cather (Moers, pp. 2-14). On Hartmann's criticism of Stieglitz's 1897 folio, see this study, Chapter Seven.

42. Rosenfeld, p. 74.

43. Stieglitz, AAP, March 1895, p. 141, quoted in Larry Taylor, p. 53.

45. Ibid., p. 251.


47. For example, in an 1898 article on out-of-door portraiture, Stieglitz suggested a natural background for the figure. He advised photographers to position the subject so that the light might strike the face at an angle, qualifying his advice with the admonition, "Experience in this direction is the best teacher" (Stieglitz, "A Natural Background for Out-of-Door Portraiture," AAP/PTA [1898]:210-11). In another 1898 essay on nocturnal landscape photography, Stieglitz chastised those documentarians who strove solely for topographical accuracy in their work; the introduction of life and movement into this branch of photography mattered more. Stieglitz described how not only the streets and buildings illuminated by artificial light, but also the figures on these streets and the shapes formed by reflections were appropriate subjects for pictures.

However, even in his naturalistic essays of this time Stieglitz was thinking conceptually. No picture thus preconceived could be like any other, he claimed, an idea he later continued to champion. Writing that effective night photography could best be obtained by drastically shortening exposure times, he added that effectiveness was measured by "increasing the possibilities of picture-making" (Stieglitz, "Night Photography with the Introduction of Life," AAP/PTA [1898]:204-07).


49. The actual elapsed time would have been limited to two and one-half years (Stieglitz implied that it lasted but a few months).


52. Stieglitz to R. Child Bayley, 9 October 1919, YCAL.

Success, 1899, quoted in Moers, p. 13.


55. A qualifying statement is here in order. That Stieglitz removed some offending elements from the picture signifies his willingness to sacrifice certain aspects of reality for beauty. In his more acutely "scientific" periods (the early 1890s and 1907-11), he would zero in on reality in order to abstract structures of beauty from it. Dodging, burning, and cropping (but not painting out) were photographic processes he utilized, for example in Winter--Fifth Avenue.

56. Stieglitz, "Platinotype up to Date," p. 496.


58. Stieglitz, "Platinotype up to Date," p. 497. Stieglitz changed his tune about mechanicalness as the century turned; however, this shift was temporary. See the following two chapters, and Stieglitz's discussion on Autochromes in Chapter Nine.

CHAPTER SIX

STIEGLITZ AND SECESSION: THE FORMALIZATION OF MOOD

The following discussion concerns a period of complexity and ambiguity in Alfred Stieglitz's philosophy, activity, and creative work. It is most concisely delimited by Stieglitz's tenure as editor of Camera Notes (1897-1902), but the ideas that define it will be seen to have emerged in the early 1890s and to have lasted through 1903.

This was the Secessionist phase of Stieglitz's career: the word "secession" connotes not only the separatist nature of the organization he founded, the Photo-Secession, but a host of ideas associated with photographic elitism, creative evolution, fin-de-siècle aestheticism, and photo-politics. This was also a period marked by the continuation of his scientific experimentation; in 1897 Stieglitz saw his dream of a laboratory modeled on A. W. Hofmann's realized.

The intent of this and the following chapter is to examine the network of aesthetic and scientific ideas that affected Stieglitz as the century turned. It will be seen that he wholeheartedly accepted the aestheticism of fine art photography, the dominant notion in amateur photography circles of this time. Determined to explore these ideas, he did not abandon his passion for science,
but clothed it in aesthetic garb. He continued to investigate and perfect photochemical processes, but caught up in the Symbolist notion of subjectivity, did not develop his Machist notion of dynamic scientific idealism.

Ernst Mach felt that ideas thrived when pitted in opposition to one another. Stieglitz-turned-secessionist directed his energies toward illustrating the truth of one key idea: the sovereignty of the photographic artist. Because he ultimately did not abandon science and because he surrounded himself with writers whose notions were experientially based, he was able to emerge from this phase and, beginning in 1904, revamp the Photo-Secessionist enterprise.

Science and Aestheticism: The Pre-Secessionist Phase

The waning years of the nineteenth century were waxing years for Alfred Stieglitz. As has been noted, he pursued his experiments with photographic processes and techniques throughout the decade. Eighteen hundred ninety-eight was possibly the most intense experimental year of Stieglitz's pre-Secessionist career. His work in nocturnal and inclement weather photography was crowned by prints such as Icy Night (Fig. 25), which Stieglitz claimed was an incomparable record of the vicissitudes of a terrific night.¹ He published a portfolio of twelve
photogravure prints from negatives taken in Europe and in New York, and entitled it *Picturesque Bits of New York*.

After viewing these prints, Theodore Dreiser chose Stieglitz's work as the subject for an article. In his essay, published in 1899, Dreiser noted that the "driving sleet and uncomfortable atmosphere" of photographs such as *Winter--Fifth Avenue* "had the tone of reality."

Furthermore, he claimed, Stieglitz's prints heightened reality because they represented subjects "never before attempted."^2^

The British expatriate critic and journalist Charles Caffin, who was later to enter Stieglitz's intimate Photo-Secessionist circle and to introduce scientifically progressive concepts in his articles on modern art, also found Stieglitz's purpose and tenacity worthy of comment. In his book *Photography as a Fine Art*, published in 1901, Caffin stated that

[Stieglitz's] prominent characteristic is the balanced interest which he feels in science as well as art....in seeing in his work the evidence of scientific problems solved. He is by conviction and instinct an exponent of the "straight photograph": working chiefly in the open air, with rapid exposure; leaving his models to pose themselves, and relying for results upon means strictly photographic. He is to be counted among the Impressionists; fully conceiving his picture before he attempts to take it, seeking for effects of vivid actuality, and reducing the final record to its simplest terms of expression.^3^

As noted, Stieglitz evaluated his efforts from a similar perspective: each experiment was for him a
challenge to wrest novel and dynamic subject matter from
the texture of urban experience, and each experiment was
a test to see if the hand camera and hand camera worker
could be pushed to the limits of endurance.

Considering Stieglitz's prominence in the interna-
tional photography world at this time—as discussed
below, he was the spokesman for the American salon
photography movement, modeled after European salons—it
is surprising that no one has heretofore devoted any
attention to his model experimental laboratory, the
Camera Club of New York.

In January of 1896, Stieglitz resigned his position
at American Amateur Photographer. It is probable that
the coalition he had forged with the other editors was
too fragile; due to his sometimes irascible insistence
upon high standards, an atmosphere of severe dissension
was created that could not be resolved with him at the
helm. "Too many concessions were demanded of me," he
tersely stated and turned his attention to more effective
outlets for his energies, which now, since he had also
resigned from his father's engraving business, could be
dedicated primarily to the cause of amateur art photogra-
phy.4

It will be recalled that in the early 1890s Stieg-
litz had been an active member of the Society of Amateur
Photographers, which was the parent organization for
American Amateur Photographer. He lectured and gave photochemical demonstrations to this rather exclusive group of art and science-oriented individuals, informing them of developing, printing, toning, and slide-making processes which they could adapt at will for their various projects.

Although dedicated to art photography, the Amateurs were by and large not wealthy; their facility probably consisted of a lecture room and office. Moreover, their aesthetic ideas were retardaiaire, if not actually moribund, for the naturalistic 1890s. They subscribed to Pre-Raphaelite strictures of sharp focus and could not fathom why Stieglitz would want to print what they felt was a "messy" negative, such as the negative of Winter—Fifth Avenue. Some of the Amateurs were actually losing interest in photography altogether.

The Camera Club, an organization founded to rival the Amateurs (the Amateurs were founded in 1884; the Camera Club in 1888), attracted a different type of amateur photographer. This would be an affluent beginner or near-beginner interested in learning about new processes and new ideas, but not from a purely fine arts standpoint.

By 1896 the Camera Club's membership roster, revenues, and facilities had outstripped the Amateurs', but lacking fine arts credentials they could not obtain
the credibility they desired (as noted below, amateur photographers were expected to have a knowledge of fine art). Stieglitz, evidently the Amateurs' fine arts drawing card, was approached to see if the two groups could effectively merge. In 1896 they did, and "the result was almost immediate growth and action."

The merger having been realized under the more powerful Camera Club's auspices, the now even larger Camera Club of New York assigned new officers to the task of reorganization. Unwilling to tackle yet another administrative position, Stieglitz declined the presidency, but accepted the position of Vice President in charge of publications.

During the following year, he and his assistant William Murray totally revamped the club's existing informal newsletter, the Journal of the Camera Club. They were determined to turn it into an elegant quarterly replete with news items, scientific articles, exhibition reviews, and essays on aesthetics. Camera Notes was unveiled in July of 1897, and soon became the "talk of the international photographic community." Stieglitz was unquestionably the motivating force in this transformation, which resulted in international acclaim both for the Camera Club and for his ideals.

The opening statement of Volume I, Number I established Stieglitz's uncompromising and comprehensive
editorial policy. There he proclaimed:

In the case of the photogravures the utmost care will be exercised to publish nothing but what is the development of an organic idea, the evolution of an inward principle; a picture rather than a photograph, though photography must be the method of graphic representation....Camera Notes...is intended to take cognizance also of what is going on in the photographic world at large, to review new processes and consider new instruments and agents as they come into notice; in short, to keep our members in touch with everything connected with the progress and elevation of photography.10

The first part of Stieglitz's statement is a by-now familiar restatement of his tonalist aesthetic, albeit couched within a somewhat pretentious and obscurely metaphysical envelope, the "evolution of an inward principle." What is of interest in the present context is the second part of his statement. The tone of this is rigorously scientific (empiricist and reportorial). Just as the chemistry laboratory of A. W. Hofmann published a journal of its proceedings and contained an extensive library, Stieglitz's new aesthetic laboratory (the Camera Club) was now about to publish both original memoirs and reports of photochemical developments in the amateur photographic world at large.

True to his word, Stieglitz followed through on his initial editorial pronouncement and made Camera Notes a forum for photochemical advance. He published articles by scientifically oriented amateurs who, like he himself some ten years earlier, wished to make their mark by
contributing to the "evolution" of a particular photographic process. He also incorporated a technical section (identified in one issue as "The Test Room") wherein the editors could report on recently developed products and processes and review recently published books.

As he had done in the late 1880s for other amateur photography publications, Stieglitz recounted his experiments in the first person and qualified his recommendations when he deemed that they reflected interim conclusions. Even more importantly, he initiated an open door policy for members to air their opinions and report the conclusions of their various photographic research projects. These ideas and conclusions need not be process-oriented, Stieglitz stated in an 1899 editorial, but in order to appear in print they must scientifically sound. Mere dissent unsupported by "new data or deductions" Stieglitz would not consider for publication.

As Stieglitz divided his time between Camera Notes, Camera Club activities, and intense photo politicking from 1897 to 1901, it is understandable that few feature articles were issued under his authorship. Two photo-chemical features, however, one on lantern slides written by him and the other on platinum printing that fellow Camera Club member Joseph Keiley wrote with his collaboration, reveal that his work at the Camera Club was as
experimental as ever.

In the first article (probably reprinted from a Camera Club lecture and demonstration), entitled "Some Remarks on Lantern Slides" (1897), Stieglitz explained how normally developed slides could be reduced, that is, rendered more tonally rich. Develop the slide by any standard method until the image disappears when the plate is exposed to ordinary light, he advised, then immerse it in a weak solution of ferricyanide of potassium until the image is rendered fairly distinct. The next step is local reduction with a brush utilizing a dilute solution of ferricyanide of potassium and hyposulphite of soda. Finally, he wrote, brush the slide with one or a number of toning baths. "In most cases," Stieglitz concluded, "the results are crude and exaggerated, but of great interest from a chemical point of view." 13

In the second photochemical report, "The 'Camera Notes' Improved Glycerine Process for the Development of Platinum Prints," (1900) Keiley discussed his and Stieglitz's improved method for monitoring the development of platinotypes. Using a broad brush, the photographer coated a developed print with glycerine, blotted it, then re-coated it with a second glycerine solution. Now with finer brushes and five additional solutions, he was free to tone the moistened print in a variety of warm tones and, if desired, emphasize selected areas. This
new method opened a world of "dazzling possibilities," Keiley wrote, but he cautioned his readers not to follow these directions to the letter. Not only did the process allow much experimental leeway, but Stieglitz was still working on it and had not fully resolved the problem of stabilizing the prints.¹⁴

These two detailed reports document the reorientation of Stieglitz's ideas from naturalism to aestheticism, a shift shown most graphically by his own work of the period, discussed in Chapter Seven.

It will be recalled that in his articles and technical reports of the early 1890s Stieglitz had advocated idea, as opposed to rote photography, and had made it his goal to suggest a variety of methods and techniques which photographers might use to expedite their conceptions. When he had stressed his own ideas, he had intended them to be facilitating devices. For example, he had recommended platinum printing because it was simple and mechanical. And he had advocated use of Eastman slide plates for clear, sharply defined images. (Carbutt plates he found were better suited for diffuse images.)

Now, he rejected mechanical processing, preferring hand manipulation. Without referring to atmosphere or vision, Stieglitz also claimed diffuse tone to be the key to good (i. e., artistic) photography:
A first-class slide, we will not speak of perfection, very rarely contains clear glass, the lack of tone in any part of it being a serious defect. On the contrary, we have seen instances in which a faint veil over the whole slide would have been a great improvement, the subject presented thus gaining in atmospheric delicacy and charm. We fully appreciate that our audiences nevertheless still go into raptures over the so-termed brilliant slide, by which is meant one lacking in all medium gradation. Such a slide is an abomination to the refined eye.\textsuperscript{15}

Notwithstanding this assumption of a decidedly unscientific and dictatorial mien (given additional weight by his new position of prominence), Alfred Stieglitz did not abandon science for art. This is shown not only in his numerous references to photochemical experimentation, but by the fact that he organized his writing in the scientific manner to which his readers had become accustomed. In the 1897 article on slides, for example, he included the history of lantern slide making, defined quality as technical and aesthetic excellence, and denied any implied pretensions to authority ("any one may be enabled to obtain similar results"\textsuperscript{16}). Furthermore, he distinguished a pictorial slide from an "aesthetic" one: the former was tonally rich, whereas the latter was tonally drenched. Stieglitz preferred tonally rich slides, undoubtedly because they did not transgress the tones of life.\textsuperscript{17}

Before moving to a discussion of the sources and rationale for Stieglitz's fin-de-siècle aestheticism, it is important to briefly describe how the New York Camera
Club's facility was organized, and how it functioned. It is clear that the layout of the place reinforced the scientific focus of Stieglitz's ideas, and it is probable that working there kept this focus intact even as Stieglitz's attentions were being diverted to the burgeoning theories and influential practitioners of high art photography.

According to Dreiser, who visited the Club's rooms in lower Manhattan in 1899, the facility was no ordinary social hall but a "ten-thousand-dollar photographic plant." Not only was it spacious, but it was a marvel of organized design. Dreiser did not use the term "laboratory" in his enunciation of the Club's facilities, which were available at nominal cost to all--they included a large working room, twelve well-equipped darkrooms, a rooftop portrait studio offering plenty of natural light, a library, and a gallery--but it is obvious that this is what it was. Alfred Stieglitz had had the major hand in designing it and in initiating its functions, geared as might be expected to beginning instruction, advanced individual research, and a free dissemination of those researchers' ideas.18

The major differences between the Camera Club laboratory and the German chemical laboratories it was modeled on were the presence in New York facility of an art gallery, an ongoing series of artistic demonstra-
tions, and a weekly artistic critique. These galvanized both members and visitors alike, who came away from their experiences determined to pursue artistic and technical excellence. The place constituted "in itself a lexicon of photographic wisdom."\(^{19}\)

Throughout the duration of his most active participation in the Camera Club, from 1897 to 1901, Alfred Stieglitz was thinking aesthetically as well as experientially. Recent scholarship has documented his increased involvement with American and European photo-politics and photography exhibitions.\(^ {20}\) Along with this involvement in photographic art came his preoccupation with Salon prints.

The Salon print was not a photographic reproduction, but an original, framed work of art, printed and sized for intimate viewing. In an effort to distinguish the art photograph from the technical photograph, Stieglitz and like-minded photographers in America and Europe turned to manipulative processes, thereby stressing that hand work as well as head work marked the print as a work of art. As one historian has written, "Nothing was mechanical about it. However the slightly alchemical or mystical operations of the wet-plate photographers might have been diminished, the dark-room was still the place where the serious work of the Nineties was done."\(^ {21}\)

As noted Stieglitz, in collaboration with Keiley,
discovered then published a new method for controlling the development of platinum prints. Stieglitz also discovered ways to alter negatives, for example painting out the objectionable girders in *The L in a Storm* (1894). Probably this photograph and his glycerine-developed platinum prints, for example *Gossip, Venice* of 1902 and *At Anchor* of 1896 (Fig. 43), both printed from negatives taken in 1894, exuded atmosphere. This, however, was texture created by hand for "pictorial" effect, rather than a textural equivalent of nature (the result of intense perceptual study and conceptual interpretation). Stieglitz called such images plastic images, realized through "the plastic nature of plate development" and "a plastic...not a mechanical process." With these processes, he averred, photography had reached a "robust maturity."  

In addition to working to further the aesthetics of the exhibition print, Alfred Stieglitz worked to further the aesthetics of the art photography movement in the years 1897-1901. As has been discussed by various scholars, amateur photographers with fine art aspirations found themselves in something of a quandary. They avidly desired independence from painting and the graphic arts and the salon system painters and graphic artists were perpetuating, but having no lasting credibility of their
own, found it necessary to organize annual salons along established fine art lines. While they wished to "secede" from the academic art world, they had no recourse but to "accede" to an academic system. This is why Stieglitz told Dreiser that his goal was to make the Camera Club a "national academy of photography." 24

The most effective way progressive photographers could differentiate themselves from their securely established fine art peers was by aggressively pursuing elite status. During the years 1890-1900, a number of "strategically separatist" 25 photography organizations were formed, including The Linked Ring Brotherhood in London (Stieglitz was a member of this group), Cercle l'Effort in Brussels, the Trifolium in Vienna, the Elect in Chicago, and the Camera Club in New York. In 1898, a series of annual salons was initiated by the Philadelphia Photographic Society in cooperation with the Pennsylvania Academy of Fine Arts. Stieglitz was one of the key movers and shakers who pushed for this continuing exhibition opportunity, which was designed to reproduce the Linked Ring's annual London Salon. Again through Stieglitz's agitation, the Philadelphia Salon evolved to a strictly photographic event, with photographers replacing painters on the jury. 26

Just as Alfred Stieglitz was looked to as a leader of photochemical experimentation, he was admired as a
spokesman for separatism. As early as 1892 he analogized American art photographers to runners who were losing the race for supremacy to the British:

We are still many lengths in the rear, apparently content to remain there, inasmuch as we seem to lack the energy to strive forward—to push ahead with that American will-power which is so greatly admired by the whole civilized world, and most of all, by the Americans themselves. 27

By 1902, a key year for separatist art photography because the Photo-Secession was just about to emerge, Stieglitz felt the race had substantially been won. He wrote in American Amateur Photographer:

It was only through the adoption of this independent course, much as it may have been ridiculed by press, photographers at large, artists, and even "artists," that respect for the earnestness of the workers was gradually forced from their most bitter opponents, and eventually it also proved to have been the direct cause of the recognition to-day universally accorded to pictorial photography. 28

Who were the theoreticians of this militant photographic elitist corps? As might reasonably be expected, the key spokesmen were Europeans, either leading members of or associated with the model art photography organizations. At this juncture it is worthwhile to examine the tenets of art photography as enunciated by British photographers George Bernard Shaw and A. Horsley Hinton, the German critic F. Matthies-Masuren, and the Munich Secessionists. This was a formidable battalion of aesthetes, and all of them were influential for Stieg- glitz.
Alfred Stieglitz had become familiar with Shaw’s writings at least by the turn of the century and probably even earlier. At that time the British dramatist and critic was writing extensive philosophical commentaries on London photographic exhibitions and producing photographic work of his own. It is probably through their mutual affiliation with the Linked Ring, the mystical, elite photographic brotherhood formed in 1893 to challenge the hegemony of the Royal Photographic Society, that Stieglitz had become cognizant of Shaw’s ideas.29

G. B. Shaw professed a personal religion premised upon creative genius. Moreover, he prefaced his creed, “Creative Evolution,” upon a significant late nineteenth century current in the history and philosophy of science. This was Neo-Lamarckism, directly indebted to the early nineteenth century “romantic” French evolutionist Jean Baptiste Lamarck.

The Neo-Lamarckian movement developed as an alternative to the Darwinian philosophy of natural selection. Lamarck believed that higher forms of life were derived from lower forms through progressive, slow development, via the mechanism of inheritance of characteristics acquired during each individual’s lifetime. As Peter Bowler has pointed out, “For Lamarck, the species constituted a hierarchy of structures ranging up to the most complex, and this hierarchy represented the historical
pattern along which life had advanced." Neo-Lamarckism presupposed a predetermined link between the most advanced organism, modern man, and his most primitive predecessor, who had been formed in the remote past through spontaneous generation. Its broader philosophical implications, however, were not so much deterministic but liberating. Bowler has explained:

Lamarckism allows life itself to be seen as purposeful and creative. Living things are in charge of their own evolution: they choose their response to each environmental challenge and thus direct evolution by their own efforts....Life becomes an active force in nature....

G. B. Shaw was a leading advocate of Neo-Lamarckism in the European literary community. The theme of his drama *Man and Superman* of 1901, which Stieglitz must have read, is that life strives by its own efforts to higher forms. This play was expressly intended, Shaw claimed, to be "a revelation of the modern religion of evolution." Individual gratification was of little import in Shavian creative evolution, but "individual effort was absolutely essential." The scope of human development was "progressive, purposive and willed."

Shaw amplified and deepened these ideas in another play *Back to Methuselah* (1921) where, in the preface, he offered this cogent and direct statement of his philosophy:

You are alive; and you want to be more alive. You want an extension of consciousness and of power. You
want, consequently, additional organs: that is, additional habits. You get them because you want them badly enough to keep trying for them until they come. Nobody knows how: nobody knows why: all we know is that the thing actually takes place. We relapse miserably from effort to effort until the old organ is modified or the new one created, when suddenly the impossible becomes possible and the habit is formed.\textsuperscript{34}

Shaw's Neo-Lamarckism, applied to aesthetics, stipulated that the "organs" of sensation were the five senses. Human aesthetic senses, Shaw believed, had evolved to a supremely rarefied state. Through the creative efforts of those who possessed aesthetic sensibilities, he believed, human perceptual faculties were in the process of inheriting an immunity to the morbid, that is, "ugliness, noise, discordant speech, frowzy clothing and re-breathed air." If this development continued, perceptual faculties would not only forsake the ugly but concentrate their attention upon beauty, music, nature, "wholesome fabrics" and "utensils of elegant workmanship."\textsuperscript{35} all fabricated, of course, by artists.

For Shaw, beauty was manifest not only in exquisitely crafted objects or settings, but in modern structures that others might find repellent. For example, "A mass of cloud brooding over a river" was for him equivalent to "a great lump of a warehouse in a dirty street."\textsuperscript{36} The Shavian artist or architect, in continuing to supplying the needs of these aestheticized "organs" or senses, would add a "fresh extension of sense
to the heritage of the race." 37

With these tenets Alfred Stieglitz was in complete agreement. This is due to his belief at this time that photography had achieved perfection: it codified the predilections of perfected aesthetic sensibilities, and it gave free rein to the pursuit of the tones of urban life. Possibly echoing Shaw, Stieglitz termed Camera Notes the "evolution of an inward principle."

In terming Camera Work, the exquisite aesthetic journal he founded in 1903 to publish the prints, proceedings, and philosophy of the Photo-Secession, the "logical evolution" of the art of photography,38 Stieglitz was undoubtedly thinking along Shawian, Neo-Lamarckian evolutionary lines. In Shaw's metaphysical and romantic notion of evolution, photography functioned as the supreme art: the evocation of mystery—a mystery comprehensible to the senses it had effectively helped to evolve—was its supreme accomplishment. He stated in an essay "The Unmechanicalness of Photography" (1901):

It is the secret of the mysterious something that every photograph has, and every design lacks. The equally mysterious something that every design has and every photograph lacks is simply the mechanical mannerism of the lever and the stroke. That lack is a supreme charm in the representation of life and growth.39

G. B. Shaw's articles effectively combined photographic elitism with comprehensive fine art knowledge.

In effect, Shaw's philosophy of photography appropriated
the ambiguities of salon photography discourse (secession from painting and the graphic arts and accession to a fine art salon mentality) and gave them a new, erudite interpretation. Science was also a key source for Shaw. Thus it comes as no surprise that Alfred Stieglitz, who was educated in a European philosophical and scientific milieu, should find Shaw's ideas admirably suited to art photography. He believed Shaw could give the American salon movement the philosophical underpinnings it sorely needed.

If G. B. Shaw provided Alfred Stieglitz the theoretical framework for the elevation of salon photography, A. Horsley Hinton provided a theoretical framework for salon technique. Hinton was a charter member of the Linked Ring and editor of the prestigious British journal *Amateur Photographer*. He was one of the key spokesmen for artistic photography from 1893 to 1908, achieving renown through his lectures, writings, and photographs.

As did Shaw, Hinton believed that the goal of photography was to verify an "emotional side of man." The true pictorialist, Hinton felt, found the motive of his métier in the construction of "arbitrary symbols or figures" whose validity was proved "by that indefinable something which gives works of widely varying character a generic relationship...appeal[ing] to our feelings and awaken[ing] our imagination far more powerfully than...a
faithful and exact portrayal." For Hinton, pictorialism signified a state of mind that found concrete embodiment first in the dreamily suggestive print, then in the states of mind that the print set in motion (Fig. 32).

As in G. B. Shaw's, science played a part in Hinton's philosophy, but unlike Shaw's, Hinton's science was photochemical (Shaw was primarily a literary artist, not a photochemist). Hinton was a radical photo-manipulator who for the sake of beauty advocated whatever tricks of the trade (short of combination printing) could best render "certain poetic phases of nature." He reiterated these thoughts in articles throughout the international amateur photography press, including Stieglitz's Camera Notes, but delivered the crux of his message most succinctly in "Methods of Control," an aesthetic mini-treatise of 1897:

Nature is one thing and Art another....Art is personal, individual, and everything personal must of necessity possess emphasis. Consciously or unconsciously, every individual, in thought, or word, or act, places emphasis on that which affects him most, according to personal bias and inclination, but the lens and the plate know no emphasis....It is in order to break down this literalness, and to emphasize some idea, some part, some effect, that I require some method of control, and the necessity for it justifies its use.

A third source for Alfred Stieglitz's photographic aesthetics was the world of fine art itself. Specifically, he and other radical separatists interested in elevating the productions of art photography looked for
role models in prestige art clubs where photography was allotted a substantial place, and where the photographer was looked upon as a creative genius.\textsuperscript{46}

The Munich Secession was such a model, and the Munich Secession exhibition of 1898, sponsored by the Verlag des Vereines Bildender Künstler Münchens Sezession, gave Stieglitz the idea of forming an American secession exhibition, dedicated, however, solely to photography. (Photography, painting, sculpture, and printmaking were shown by the Munich Secessionists.) The themes of the 1898 Munich exhibition were extremely instrumental in his decision during these years to redirect his aesthetics from scientific and artistic experimentalism to a more rarefied aestheticism based upon sensation, tone, and the cultivation of personality.

According to the German photographer and theorist F. Matthies-Masuren, who wrote an essay for the Munich exhibition, its success was measured by the degree to which its organizers featured "kindred spirits" to the exclusion of mediocre art practitioners. These kindred spirits or Symbolists, including the "soft-focus" painters Edvard Munch and Eugène Carrière, had divested themselves of naturalistic precision and "the intrusive reproduction of details" (Fig. 33).\textsuperscript{47}

Matthies-Masuren intimated in his essay that the exhibitors chosen by the Secession were not intent on
plumbing the meaning and textures of reality, but the meanings and levels of sensation. In point of fact, they were Symbolists and their poetics were "pictorialist poetics," akin in tonal diffuseness and richness to the writing and criticism of the Symbolist literary avant-garde. This avant-garde, whose leaders included the French poets Stéphane Mallarmé and Jules Laforgue, as well as Mallarmé's Munich disciple Stefan George, believed that language consisted of interrelated sensations, and that sensations had graphic, tonal, or coloristic equivalents.48

At this time Stieglitz began to collect tonalist paintings, including Island of the Dead (1880, Fig. 34) by the Swiss painter Arnold Böcklin and Sin (1890-91) by the Munich Symbolist painter Franz von Stuck. He was later to collect works by the French Symbolist illustrator Félicien Rops, who also had work in the Munich show.49

It is conceivable that participating in the Munich Secession exhibition also gave Stieglitz the impetus to read or review Laforgue's tonalist prose (inspired, interestingly enough, by Hermann von Helmholtz) and to acquaint himself with George's works. Just as the aesthetics of the American Photo-Secession were to be predicated on closely-valued tonal harmonies and gauze veils or "hazy nets of light...rendered fugitive from the
real world." Laforge's writing was dominated by one or two color themes and built up, quite unnaturally, "through a gradual superimposition of successive 'touch-es.'" Just as Stieglitz's photographs of 1900-02 will be seen to represent a withdrawal from investigative naturalism into a decorative and psychically distant symbolism, George's style was predicated upon rhythmic compression, abbreviation, a mosaic-like decorativeness, psychic distance, and tonal reflection.

The Munich cultural avant-garde maintained the related view that creativity, like a tonalistic work of art, was manifest not in scientific penetration or understanding, but in sensuous and immediate feeling. The leaders of this tendency, among whom were the artists and chorists August Endell, Adolf Hölzel, and Arthur Roessler, traced their philosophies to those of the German idealist and romantic painters Philipp Otto Runge and Caspar David Friedrich. However, unlike their romantic forebears they believed that feeling had abstract coefficients, namely line, color, and form.

"Formkunst," for example, was Endell's term for a non-representational essence which bubbled out of the human spirit. The artist's fantasy, he explained, "must be so full of forms that these stream effortlessly from him for a specific purpose--and from these he makes formal images." According to Hölzel, the formal elements
of art were psychologically based; they were graphic
signs of thoughts, feelings, movements, and vibrations.
And Roessler stated, "[Forms are] significant as symbolic
veils, sensuously perceptible expressions of movements of
the spirit or the soul."53 Stieglitz explored these and
related notions in his decorative photographs, discussed
in the following chapter.

Based on his familiarity with secessionist critical
philosophies and formal programs such as Hölzel's and
Endell's, as well as his probable knowledge of the
psychologically-oriented criticism of Laforgue and his
French colleagues, Stieglitz was able to formulate a
philosophic program for an American secessionist move-
ment. That Stieglitz considered the formation of a
symbolist philosophy as pertinent to the advancement of
art photography as the formation of a symbolist organiza-
tion is proved by the editorial slant and content of
Camera Notes. Although its impact was substantial, its
philosophy can be summarized in brief.

As has been noted, Stieglitz began this editorial
venture by stating that Camera Notes would be a forum for
photochemical advances as well as philosophical ideas. A
perusal of the indices of the five volumes he edited
reveals that unlike the technically oriented competition,
Stieglitz's new journal emphasized editorial content of a
purely aesthetic nature. Despite the fact that it was
produced in the Camera Club’s state-of-the-art labora-
try, aesthetic articles outnumbered experimental articles
and photochemical reports. As Sarah Greenough has
pointed out, "throughout Camera Notes one finds a rejec-
tion of...objectivity in favor of a deeper and more
universal truth which resided in the vision of the
artist."54

Although they did not appear in this journal, G. B.
Shaw’s mystical theories of evolution were echoed by
Murray, for whom art photographers possessed arcane
truths and cosmic vision.55 Echoes and developments of
Hinton’s ideas appeared again and again, particularly in
articles by Keiley, Stieglitz’s chief experimental
collaborator and reporter, and by the critic and humorist
Dallett Fuguet.56

By 1899 Stieglitz was convinced that artistic
instinct and experimental labor were contributing part-
ners in the photographic world. Feeling and inspiration,
however, had claimed his prime interests by this time.

Art and Politics, The Photo-Secession

It was with these stated principles in mind,
together with those he had learned from the European
Symbolist artists and theorists, that Stieglitz created
the theory of the "Photo-Secession" in 1902-03.

The Photo-Secession, Stieglitz's elite corps of
colleagues and friends who essentially dominated the art photography world from 1902 to about 1909, can be traced to his first curatorial effort. From the beginning of 1901, he had been thinking of presenting a show of American fine art photography, but gallery rental costs in New York were too high to make the effort feasible. Late in 1901 Stieglitz was approached by Charles DeKay, the director of the National Arts Club, asking him to exhibit his own work in the club’s rooms. Instead, he requested that DeKay hang a group show comprised of works that had been exhibited at the International Exhibition of the Fine Arts of Glasgow, the Paris Photographic Salon, the London Salon (all three of 1901), and the Munich Secessionist exhibition of 1898. Stieglitz described all of the 162 photographs chosen for this exhibit as "secessionist." When pressed by DeKay to define the label, he countered that it was of recent European, not American derivation, and that it "hitches up with the art world."

That the Photo-Secession "hitched up" with the cult of personality in the Symbolist art world milieu was shown by Stieglitz’s criteria for inclusion in the new organization which he created in February 1902. On March 5, 1902, the opening night of the National Arts Club exhibition, Gertrude Käsebier, one of the sixty-two photographers Stieglitz had selected, asked him if she was a
Photo-Secessionist. "Do you feel you are?" he asked her.
"I do." "Well, that is all there is to it," he replied.58 Other photographers in attendance were not so
transparently "secessionist" to Stieglitz, and were
refused membership.

Stieglitz's apparent arbitrariness in gathering
this group was not so arbitrary at all. He himself had
been "initiated" into England's Linked Ring Brotherhood
in 1894, and had exhibited in their London Salon in 1894
and 1895. The Brotherhood, one of the most elite photo-
grahic societies of the time, cloaked its proceedings in
arcane mystery, to the extent that prospective members
were called "postulants," elected members were given
pseudonyms and meeting notes were transcribed in Old
English to simulate an Arthurian Round Table.59

After this show closed, Stieglitz wrote an article
on Photo-Secessionism for The Century. He took this
opportunity to expand on the theme of plasticity, first
explored in his student years with Hermann Vogel, then
reevaluated in his 1899 essay "Pictorial Photography."
There, Stieglitz had aligned plasticity to the photo-
grahic processes with which he was experimenting, such
as glycerine platinum development. Now, he restructured
its meaning, considering it another term for will,
desire, and idealization. Apparently gone was the zeal
to educate his readers in efficient exposure, develop-
ment, and printing techniques. Photography for Stieglitz had entered a realm of alchemical mystery and aesthetic perfection. As he stated in his 1902 text "Modern Pictorial Photography":

With the modern methods at command, there are virtually no limitations to the individuality that can be conveyed in the photographic print. These methods are extremely subtle and personal in character. For this reason each individual print has a distinct identity of its own that reflects the mood and feeling of its maker at the time of its production....

Stieglitz concluded this article by stating that, although secessionist photography might not be "photography...from the scientist's point of view," this was a concern that need not bother the artist, "his aim being to produce with the means at hand that which seems to him beautiful."81

Emboldened by this declaration of independence, Stieglitz expanded his aesthetic this and the following year to include a religious component, indebted in all likelihood to both the philosophy of the Linked Ring, which was a Masonic-oriented organization, and to related nineteenth century philosophies such as Rosicrucianism, which attempted to revive Western spirituality through the study of mystic religions.82 Photo-Secessivism, Stieglitz wrote in *Photograms of the Year 1902*, the 1903 *Bausch and Lomb Lens Souvenir*, and the August 1903 *Camera Craft*, is a spirit, not a program. In the last-named
article he stated:

The object of the Photo-Secession is not, as is generally supposed, to force its ideas, ideals and standards upon the photographic world, but an insistence upon the right of its members to follow their own salvation as they see it, together with the hope that by force of their example others, too, may of their own free will see the truth as they see it.63

Had Stieglitz forsaken experimentalism for mysticism? If so, why did he qualify his notion of photographic salvation by stating he had initially defined it as an experiment?64 The answer is found not in the aesthetic sphere, but in the political, and it is important because it shows Stieglitz's ability to maintain a cool and calculating stance in the face of rampant subjectivity.

Stieglitz's political rival was his exact contemporary, Boston photographer F. Holland Day, the darling of the fin-de-siècle art photography world and an expert conniver. Day dabbled in a variety of mystical philosophies, including Rosicrucianism, Theosophy, and the fanatic Christian symbolism of the Order of the Hermetic Students of the Golden Dawn. He envisioned the artist as a high priest of the imagination. Correspondingly, he believed photography was a mystical emanation, that it was the property of the spiritually elect, and that he was its Christ figure.

In an effort to perpetuate the romance of photography Day revived Pre-Raphaelite devices such as exotic
costuming and timeless subjects, and made them even more convincing by relying on effects of high contrast (Fig. 35). Although his studiously pensive compositions such as *Hannah* (1895) garnered him high praise, he achieved instant notoriety with his series on the Passion of Christ, a photographic melodrama starring himself as the emaciated Jesus. This series, exhibited at the Philadelphia Salon of 1898, spawned a torrent of critical abuse but confirmed Day's stature as a trendsetter. Recognizing this, Stieglitz asked him to write for *Camera Notes* and encouraged him to serve as a juror for the 1899 Philadelphia salon.

By adding Day to his elite corps, Stieglitz felt he could not only represent, but command the key trends in fine art photography. This is why he was not perturbed (at least in print) when in his article for *Camera Notes* Day stated that technique counted for nothing in photography and that genius was all.

Stieglitz changed his tune, however, when Day, having been unsuccessful in changing the headquarters of American art photography from New York to Boston (he asked Stieglitz to head the new society), turned around and in 1900 proceeded to mount a huge exhibition of American amateur photography in London. Conspicuously absent from Day's "New School of American Photography" exhibition was the work of Alfred Stieglitz, but the show
was well received and extremely successful. This surprise attack by Day has been identified as the key event that led Stieglitz to find a space for his own international show, the opening salvo of the Photo-Secession.68

Considered in the light of these events, Stieglitz’s “salvation” metaphor takes on political significance. Unable to absorb Day himself into his intimate circle, he co-opted Day’s philosophy. This was a risky gesture, compounded by his even riskier decision to feature Day’s photographs in the first issue of Camera Work. Day refused to accept Stieglitz’s offer, but Stieglitz ultimately conquered because his rival was not able to mount a counter-offensive.69 And almost immediately, Stieglitz began revising Day’s ideas by redefining the latter’s notion of salvation in photochemical terms. As Stieglitz described the National Arts Club exhibition in 1902:

Not only was the exhibition national...but, strangely enough, all printing media from aristo to “gum bichromate” on the one hand, and bromide to “glycerine platinotype” on the other, were embraced, thus showing that the Photo-Secessionist is committed to no other medium than that which best lends itself to his purpose.70

The Day incident demonstrates Stieglitz’s keen political sense. Uncannily able to determine the direction from which the wind of avant-garde opinion was blowing, he added the Bostonian photographer’s aesthetic plank onto the Photo-Secessionist platform and when Day refused to co-author it in the Photo-Secessionists'
journal, Stieglitz appropriated it for his own. As Stieglitz implied, this was a bold experiment.

By 1903, however, there is no doubt that Stieglitz had circumscribed his scientific experimentalism within rigidly defined bounds. He had not only made technique subservient to personal whim, but had made personal whim a creed that others must follow if they would "save" their reputations in the art photography circuit. Alexander Black, writing a hypothetical conversation on pictorialism for *The Century* in 1902, cast Stieglitz as the "professor" who was doing his best to make the science of photography into the fine art-science of photographing.71 And C. Harold Conway, in an article for *Munsey's Magazine* published the same year, called Stieglitz an artist and idealist who was working to "reconcile [other] idealists to the achievements of the industrial century."72 Conway saw Stieglitz, as Stieglitz evidently saw himself, as a scientist turned elitist and Symbolist crusader.
NOTES

1. Stieglitz, quoted in Norman, American Seer, p. 44. Stieglitz's footsteps are clearly visible in the snow.

2. Dreiser, "The Camera Club of New York," Ainslee's, October 1899, p. 329, cited in Leonard, p. 280, and in Moers, p. 12. According to Moers, Stieglitz's New York photographs were instrumental in the formation of Dreiser's literary technique. Furthermore, because of "Stieglitz and the artists who followed him, "the blizzard came to mean to New York what fog had long meant to London--the city's unique sign, its hard chal-


5. "The Amateurs had artistic talent to compel recognition and position. It lacked numbers and revenue to give it corporate greatness and importance" (Dreiser, "The Camera Club of New York," Ainslee's Magazine 4 [October 1899], in Bunnell, p. 120).


7. "The dress suits, as Alfred referred to the society's disaffected dodos, would be happy to replace photography with any new pastime, so long as it was exclusive: why not start a bicycle club?" (Lowe, p. 107)

8. Dreiser, "Camera Club," in Bunnell, p. 120.


13. Stieglitz, "Some Remarks on Lantern Slides," CN 1 (October 1897): 38-39. This article was very much in demand, as it was reprinted in Amateur Photographer, Photographic Times, and Photographische Mitteilungen. Apparently, Stieglitz's experiments were followed and eagerly anticipated by photographers both in Europe and America.


17. Ibid., p. 34. Stieglitz explained how slides could be toned with blue and gold, but he preferred monochrome slides because they were more pictorial. Colors should be added only with delicacy and discrimination, and only for aesthetic purposes (pp. 38-39).

18. William Murray, who worked closely with Stieglitz during these years, had this to say about his laboratory partner:

It is not merely that he is an artist, with an eye ever watchful for pictures as they present themselves in the ordinary scenes of human life, but that he is a skilled photographer as well, full of the resources that a long training in the laboratory gives him for all the chemical and mechanical processes of what has been well called, the art-science. Mr. Stieglitz has been, since his first initiation into our organization, a leader in the scientific as well as the art side of photography, and most of the new processes of printing, and toning, and other means of more perfectly reproducing pictorial values have been introduced to us by him in both precept and example (Murray, review of Picturesque Bits of New York, and Other Studies, by Stieglitz, CN 1 [January 1898]: 84-85).

19. Dreiser, "Camera Club," in Bunnell, pp. 120-
21.

Stieglitz published the Camera Club's statement of purpose in *Camera Notes*. This document lists the Club's facilities and functions and dovetails with Dreiser's description. Of interest here are the "Lectures on Practical and Scientific Photography," the "comprehensive library, including the leading photographic periodicals of the world," and "best of all, the daily opportunity to 'see how it is done' by the leading amateurs of the country, and to almost unconsciously acquire a higher photographic standard through simple association with the masters of the art" ("The Camera Club," *CN* 2 [1898]:xviv).


26. This occurred in the planning stages for the second Salon, held between October 22 and November 19, 1899.


29. Shaw was not a member of this organization, but he wrote on work by various "Links," such as Alvin Langdon Coburn.

30. Bowler, p. 79.

31. Ibid., p. 244.


34. Shaw, cited in Ganz, pp. 45-46.


38. Stieglitz, Statement, CW no. 1 (January 1903):2, cited in Taylor, p. 83. On the design and "mystery" of Camera Work, see Chapter Eight of this study.


40. Shaw knew, if not through his own laboratory work, then certainly from his photographer colleagues, that three-color photography was one of the key research problems of the day. The invention of three-color photography, he speculated, would be the final step in the creative evolution of the medium. For photography would then be able to produce effects that only painters had heretofore been able to, and then it could reveal the poetry that only the great Baroque masters had been able to evoke. At that point, Shaw mused, "draughtsmen and painters will be left to cultivate the pious edifications of Raphael, Kaulbach, Delaroche, and [other academic] designers....But even then they will photograph their models instead of drawing them" (Shaw, 1901, in "Bernard Shaw and Photography," CW no. 37 [January 1912], p. 38).

41. Although Stieglitz featured Shaw's writing in Camera Work in 1906 and 1912, the Shavian and Neo-Lamarckian concept of creative evolution had motivated his editorial decisions as early as December 1901. In that month F. Dundas Todd, editor of the Photo-Beacon, gave a lecture to the New York Camera Club. Stieglitz undoubtedly attended the lecture, then obtained a transcript of it from Todd for publication in the next number of Camera Notes. Todd's essay, entitled "Parallel Paths to the
Pictorial Paradise," applied Neo-Lamarckism to photography implying that photographers might expect not just to emulate the Old Masters, but to create an aesthetic of their own, an aesthetic of abstraction. Todd also treated photographic thought as a Spencerian evolutionary construct which would evolve from the simple to the complex. Most importantly Todd noted, the elements of photography should evolve from the concrete to the abstract. As he stated in his essay:

...human interest alone will not make a picture. A new idea appears upon our horizon. It dawns upon us that the arrangement of these objects on paper is essential to pleasing results and thus we are lead [sic] to the study of composition. We now enter into the domain of the abstract in art, and, very naturally, begin to lose interest in the concrete facts that at one time formed the sole attraction, but composition in turn loses interest and is soon supplanted by the higher problem of light and shade. This again gives place to the conception of tone values, every stage carrying us more and more into the domain of the abstract and further and further from the material. The highest pinnacle of all is when we attain the dignity of endeavoring to express a thought (F. Dundas Todd, "Parallel Paths to the Pictorial Paradise." CN 4 [April 1902]:288-69).


44. For example, Hinton wrote in "Some Distinctions":

Art, whatever the means employed to express her inspirations, may have many phases, many moods. There may even seem many degrees of perfection, according to the power of him whom the gods have chosen to carry out the thought that began with them. But that which is produced is either artistic or it is not.

Attempting to expand the parameters of pictorialism, Hinton appealed to musical analogy. Yet his appeal was somewhat muddied by an application of the retardaera Ruskinian pathetic fallacy when he wrote that
We speak of a pensive evening, whilst to other phases of nature we attach the attributes sad, jubilant or solemn, all of which sentiments are purely fictitious so far as nature itself is concerned. They are emotions which are awakened in us by certain physical circumstances, and if we so portray the particular scene as to convey the same emotion to others, we have created something which only existed in our own imagination.... (Hinton, "Some Distinctions," CN 3 [January 1900]:92, 98).

The French pictorial photographer and arch-manipulator Robert Demachy was to make a similar case later in Camera Work. In an article of 1907 he wrote, "Nature is often beautiful, of course, but never artistic 'per se,' for there can be no art without the intervention of the artist in the making of the picture. Nature is but a theme for the artist to play upon" (Robert Demachy, "The Straight and Modified Print," CW no. 17 [April 1907]:40).

48. The term "pictorialist poetics" is borrowed from the book of the same name by David Scott (Cambridge and New York: Cambridge University Press, 1988).
49. The titles of the works by Rops owned by Stieglitz are not known.
51. David Scott, p. 32.
55. Like the French Symbolist writer and mystic Edouard Schuré, whose major work Les Grands Initiés (1889) was widely read in Europe at this time, Murray subscribed to a Pythagorean ideal. For both Schuré and Murray, the known entities of the cosmos evidenced the workings of the Supreme Being, who had set them into sequences of mathematical and geometrical perfection. It was the "great initiate's" privilege to envision and capture correspondences between the cosmic and terrestrial spheres. That these correspondences existed was a psychological fact (Edouard Schuré, Les Grands Initiés [Paris: Librairie Académique Perrin, 1949], p. 340, and Murray, "The Music of Colors, the Colors of Music and the Music of the Planets," CN 1 [January 1898]:67, 68).

Seen from the perspective of Symbolism and specifically musical analogy, Murray's goal was to enlarge the perceptual and conceptual parameters of photography, as well as to add a mystical component. The photographer was enjoined to expand his sensual capacities by correlating visual with auditory harmonies. He was also enticed to enter the realm of the metaphysical and the abstract. As Murray stated, "the camera [is] at once the most truthful recorder of the kaleidoscopic changes of the visible and invisible phenomena of Nature and at the same time may be made the most obedient servant in the retinue of art" (Murray, "Self-Culture and Photography," CN 2 [October 1898]:40).

56. Keiley limned a metaphysically idealistic approach to art in general and to Stieglitz's photography in particular, diametrically opposed to typical fine art compositional theory and to the prescriptive ideas of "first principles" critics.

The all-embracing law of pictorial photography is that of harmony, Keiley stated in his essay, "Tonality," published in Camera Notes in April 1899, harmony being "the fitting or joining together of such parts or elements as will blend most perfectly into a concordant unity." At this point one might expect Keiley to have launched into an enumeration of certain subsidiary laws guaranteed to ensure a "harmonious" picture. But Keiley, not the typical pictorialist, chose to dwell upon tonal relationships. Probably thinking of the American aestheteician Arthur Wesley Dow, whose manual Composition was also published in 1899, he advocated a relativistic and constructional approach to tonality. Keiley, moreover, was careful to sidestep the issue of rulemaking. He did not advocate photography by chance, but photography by creative intuition. The photographer, Keiley averred,
must be a master of correspondences; he or she must intuit the harmony of a subject just as abstractly—that is, in terms of interrelated tones—as the musician or the mathematically, metrically knowledgable poet would (Keiley, "Tonality," CN 2 [April 1899]: 135, 136) See Chapter Eight for Keiley's more dynamic, Camera Work criticism.

Fuguet, a frequent contributor to Camera Notes and one of the co-editors of Camera Work, subscribed to an intellectual and emotional view of art. But for him science was a discipline of fact-finding, more interesting from an archeological or prospecting standpoint than from the higher plateau of aesthetics. In an article, "On Art and Originality Again" (Camera Work, July 1905), Fuguet wrote, "[The idea] is not a thing of fact-communication as in science, but a thing of feeling....its growth and sequence are by emotional connection, so that its coherence must be one of feeling and not of rhetorical reasoning—of the heart and not merely of the head" (Fuguet, "On Art and Originality Again," CW 11 [July 1905]: 26).

Even though he was a construction-oriented critic, Fuguet was wary of ratiocinative processes, feeling that only intuitively derived ideas and sensations were the marks of the true artist. "All that exists, including all that has gone before, is [the true artist's]—if he can make it vitally and truly of himself...what is really his will be a new note struck in art," Fuguet wrote (Dallek Fuguet, "Art and Originality Again," pp. 26, 28).

57. Stieglitz, quoted in Norman, American Seer, p. 46.


61. Ibid.

62. There is no direct evidence for Stieglitz's knowledge of Rosicrucianism. It was a widespread philosophy at this time, liberally intermingled with aspects of Freemasonry. For example, the highest degree in the


65. Pre-Raphaelite images tended to be monochromatic.

66. Stieglitz had recognized Day's importance as early as 1895, when his friends George Davison and Rudolf Eickemeyer recommended Day's work to him. Responding immediately, Stieglitz proceeded to add works by Day to his collection. These were the first American prints he purchased (Estelle Jussim, *Slave to Beauty, The Eccentric Life and Controversial Career of F. Holland Day, Photographer, Publisher, Aesthete* [Boston: David R. Godine, 1981], pp. 105, 106). Of additional interest is the fact that Stieglitz, Day, and the future Photo-Secessionist photographer Clarence White worked together around 1897, photographing be-garlanded statues with models dressed as nymphs (see Harker, Fig. 8.21).


69. "By excluding himself from *Camera Work*, Day inadvertently committed himself to a long and undeserved oblivion" (Jussim, p. 152).


71. Alexander Black, "The New Photography, I. The Artist and the Camera: A Debate," *The Century Magazine*, October 1902, pp. 813-22. Black's dialogue involved three hypothetical participants, a professor, a painter and a photographer. The photographer's statements patently reveal him to be none other than Stieglitz ("There is not a single feature of the photographic process from selection and lighting to trimming and mounting the print that is not subject to control, to purely personal modification" [p. 816]). The professor,
however Black meant him to function as an outsider, says Stieglitzian things, to wit: "A picture is a work of art in the proportion of its success in expressing ideas. The rating of an art is established commonly by an estimate of the relation between its medium of expression and the ideas expressed" (p. 814).

CHAPTER SEVEN

STIEGLITZ AND SECESSION: STRUCTURES AND CRITICS OF MOOD

In the previous chapter the philosophy of the Photo-Secession was situated in a progressive, but ambiguous setting of art and science: it was seen that fine art, salon photography, doctrines of evolution, and photochemistry played important roles in the genesis of Alfred Stieglitz's new photography club. It was also shown that art was the governing concept of the Photo-Secessionist enterprise, and science its closeted partner. Nonetheless, it was demonstrated that Stieglitz was determined to publicize his venture as experimental and dedicated to the pursuit of excellence in all existing fine art photography processes. As Stieglitz stated, "the ability to make a truly artistic photograph is not acquired off-hand, but is the result of an artistic instinct coupled with years of labor."¹

Whereas other aesthetes, including photographers who wrote regularly for Camera Notes, were content to explore issues of sensibility, poetic vision, and emotive tonality,² Stieglitz insisted that for photography to be pictorial it must expand the parameters of the medium. Therefore he wrote about the plasticity of negative development and printing, and submitted his photographs for publication with titles, credentials and
brief descriptions of his processing methods. In fact, judging by "Pictorial Photography," his major article of the Seccessionist period, Stieglitz selected illustrations to demonstrate both his aesthetic principles and his prowess in photochemical research.

However, lacking scientifically-grounded, philosophical descriptions of them by their author, who had temporarily abandoned this form of writing in order to devote his energies to polemical tracts, exhibition planning, structuring his organization, and masterminding the initial volumes of Camera Work, Alfred Stieglitz's photographs of the period 1897-1903 lend themselves best to aesthetic interpretation. To a certain degree, this is the correct way to evaluate them, because Stieglitz wanted them seen that way (for him at this time, technique reinforced beauty). Inherent in this attitude, however, was the danger that aestheticism could become a self-sufficient and fulfilling way of life, and that art might become ultimately more interesting than experience. That Stieglitz did not come to these conclusions is of course the measure of his own scientific curiosity.

However, Stieglitz's return to scientific premises in 1904 must also be attributed in part to the influence of his leading writers Sadakichi Hartmann and Charles Caffin. Stieglitz's turn-of-the-century photographs and the two photography critics who interpreted them in an
experiential matrix are the subject of this chapter.

**Stieglitz's Symbolist Photographs, c. 1894-1904**

The origins of Stieglitz's photographic aestheticism are to be found not at the end of the 1890s, but in 1894, the same year in which, stimulated by the light and peoples of France, Holland, and Germany, he had formulated his notions of empiricism and materialism, then partially revised them to a Machist empirio-critical idealism. (Recall that his writing of this period was also transitional, moving away from romanticism in order to "test the waters" of neo-romanticism.)

This can be demonstrated by examining *A Decorative Panel* (also entitled *On the Seine--Near Paris*) (Fig. 36), taken in 1894 in the environs of Paris and exhibited in London two years later. At first this photograph appears to be a record of a country drive abruptly halted by the leisurely grazing of a herd of goats. In actuality, Stieglitz had previsualized the scene and "for more than a week he stood every afternoon with his camera at the same spot, until at last he saw before him what he considered essential for a picture." Stieglitz's negative undoubtedly included much more of the scene at the top and bottom than he actually used; the long horizontal proportion he selected effectively accentuated the horizon in the picture and flattened the scene. It
also makes the print look like a style of painting then in vogue, for example that of Pierre Puvis de Chavannes.

While in Paris, Stieglitz undoubtedly viewed this French artist's murals at the Panthéon (1877), over the staircase at the Sorbonne (1888-89), or at the Hôtel de Ville; he reproduced Puvis's *L'Hiver* (1892), painted for the Hôtel de Ville, in *Camera Work*. That Stieglitz considered these allusions "a good joke" is obvious since he transformed Puvis's muses (for example, in *L'Été* [1891, Fig. 37], a mural in the Hôtel de Ville) into goats.

However, in a formal sense Stieglitz was becoming quite interested in the decorative and its Symbolist ramifications. His preference for geometrically structured frameworks did not first appear at this time; in the late 1880s and early 1890s he had experimented with rectangular, diagonal, and wedge-like compositions. However, those images are sharper, more robust, more "site specific," and more contemporary in feeling than the ones presently under consideration. The latter photographs are heralds of Stieglitz's "secessionist" phase.  

For example, his well-known image of 1894, *Harvesting, Black Forest, Germany* (Fig. 38), reads at first glance as a photographic transcription of the realist style of Jean François Millet. The shimmering reflec-
tions throughout the image, however, are more reminiscent of Symbolist painting, as exemplified by the work of Alphonse Osbert who exhibited in Paris in the early 1890s, in Josephin Péladan’s Salons of the Rose-Croix (Fig. 39).

Stieglitz’s A Wet Day on the Boulevard, Paris (1894, Fig. 40) breathes a poetry of strangeness and dream not unlike that of the Munich Secessionist Franz von Stuck, whose work Stieglitz collected, as well as the Belgian Symbolist Fernand Khnopff, a Rose-Croix exhibitor (Fig. 41). When considered in the context of his European and New York series, of which they form a part, these images by Stieglitz appear more naturalistic—that is, atmospheric and perceptually based—than Symbolist, and Hartmann was to note that fact. The seeds had been planted, however, for his later, subjectively tonalist work.

Stieglitz and Keiley’s collaborative work in experimental, manipulative printmaking processes has been noted. During the latter 1890s Stieglitz appropriated and reprinted older negatives. At Anchor, another record of his 1894 European trip, was remarkably transformed in 1896 when a gum bichromate and India ink print was made of it on rough Whatman paper. The subtle spatial relationships and atmospheric depth that characterized the original "straight" print were swallowed into a limpid
grey pool or fog of tone in the manipulated version (Figs. 42 and 43).

From 1901 to 1904, Stieglitz made straight prints with the same aesthetic harmony in mind. *Spring Showers* (1901), printed in a long horizontal proportion reminiscent of a Japanese scroll, is a poetic study in gray with black calligraphy and an obligatory figure for scale (Fig. 44). *Snapshot, From My Window, New York* (1901-02) reads similarly, this time in harmonies of gray, whitish-gray, and black. Confronted by a New York snowstorm, as he had been earlier in 1893, Stieglitz now chose to retire to his room rather than brave the elements; what he wanted this time was "symbolic veils" and texture, not grit and blinding snow (Fig. 45). In *Going to the Post, Morris Park* (1904), Stieglitz's theme is a horse race, but sealed within the decorative structuring of the picture plane; the iron framework in the grandstand (possibly meant to support an awning) neatly bisects the composition into two rectangles, which the horizon line and near boundary of the track divide vertically into three subsidiary planes (Fig. 46).

That Stieglitz conceived and printed his most famous images of this period, *The Hand of Man* (1902) and *The "Flat-Iron"* (1902-03), from a decorative, Orientalist, and Symbolist perspective is convincingly demonstrated by his presentation of the former and the
context and description of the latter.

In *The Hand of Man* (Fig. 47), as in Stieglitz's contemporary railroad photograph *Snapshot—In the New York Central Yards* (Fig. 26), the dark form of a steam locomotive advances toward the viewer through a forest of interconnecting rails. Further comparison of the two images shows that Stieglitz chose to concentrate upon atmosphere, force, and movement only in *Snapshot* (the white steam billows upward and diagonally back until it appears to collide with a group of buildings positioned along the tracks).  

In *The Hand of Man*, by contrast, dynamism is replaced by stasis, or sensations approaching stasis. The locomotive is assuredly in motion, but its burst of steam dissipates quickly into the cloudy atmosphere. Rather than evidencing the power which propels the locomotive forward, the steam reads as a pillar or trunk which visually slows it almost to a complete stop. The locomotive, compositionally in line with the similarly toned buildings near the horizon, defines the horizontal and vertical axes of the composition; it is the linchpin of the composition's decorative (as opposed to emotive) strength. Viewed in the context that Stieglitz created for it, *The Hand of Man* allegorizes the will and the hand of the artist to alter or conceive of nature as he or she desires, and to enforce the universal significance of
this singular conception.

Whereas he withheld *Snapshot* from publication until 1907, Stieglitz incorporated *The Hand of Man* into the first (January 1903) issue of *Camera Work*. Significantly, he accompanied the image with a group of reproductions that were likewise organized according to purely decorative principles. These included *Sorbonne* (1901, Fig. 48), a platinum print by Gertrude Käsebier, an undated *Landscape* by the American tonalist and Barbizon painter Dwight W. Tryon, *L'Hiver* by Puvis de Chavannes, and *A Study in Natural History*, an undated photogravure by A. Radclyffe Dugmore. In order to demonstrate that these images evidenced Oriental, decorative qualities—qualities with which he wished to illustrate the concept of Photo-Secessionism—Stieglitz engaged the Japanese art scholar and critic Sadakichi Hartmann to write about them.

In "Repetition, with Slight Variation," the key article in that premier issue of *Camera Work*, Hartmann stated that the principle of repetition with slight variation, one he had seen evidenced in Japanese art, was "decorative and yet true to life," continuing, "Its object is not to execute a perfect imitation of reality (only bad works of art do that) or a poetic resemblance of life (as our best painters produce), but merely a commentary on some pictorial vision, which sets the mind
to think and dream." Hartmann illustrated this idea by describing the musical harmonies achieved by Puvis and Tryon. (Originally he may have also referred to Steiglitz, whose work he admired. Steiglitz would have edited that section as too self-serving.)

Considering The "Flat-Iron" (Fig. 49) in the context of its closest relatives, Steiglitz’s Spring Showers, Going to the Post, Morris Park, and The Street—Design for a Poster (c. 1902-03) (Figs. 44, 46, and 50), it can be seen that the decorative motif—in all of these images a deciduous tree in a cold season—predominates. For example, the foreground tree does not so much define the scale of the Flatiron Building, rather it dwarfs the man-made structure and coaxes it to respond to its own linear, ballet-like stance. Weather, although a factor in these images, provides more comfort (a picturesque atmosphere) than bite.

In addition to The Street—A Design for a Poster, Steiglitz reproduced The "Flat-Iron" in the October 1903 Camera Work.

Recalling his experiences photographing the edifice, an early steel-framed office building designed by Daniel Burnham and built in 1901-02, Steiglitz compared the Flatiron to the prow of a huge steamship. He also termed it a "new Parthenon," as representative of Ameri-
can engineering technology as the classical Parthenon was of Greek post-and-lintel construction.¹³ This engineering metaphor implied more than a comparison of technical know-how; for Alfred Stieglitz, there was a mysterious, romantic principle involved.

In this context it is important to note that Stieglitz was apparently showing no aesthetic interest in the structure of the Flatiron Building, although as a former student of engineering he undoubtedly viewed the use of structural steel, an essential prerequisite for skyscraper architecture, with great technological interest. He admired the Flatiron as a tower of amazing lightness and solidity, but loved it because, to him, it seemed "a picture of America still in the making."¹⁴

Hartmann, who wrote an essay and poem about the skyscraper for Camera Work (the same issue in which the Stieglitz photograph appeared) echoed this view in part by commenting about the "iron-construction" that,

as if guided by a magic hand, weaves its network over rivers and straight into the air with scientific precision, developing by its very absence of everything unnecessary new laws of beauty which have not yet been explored, which are perhaps not even conscious to their originators (italics mine).¹⁵

Although both Stieglitz and Hartmann praised contemporary engineering and architecture (the poetics of Walt Whitman are recalled in their comments, as well¹⁶), Stieglitz saw them as emblems of the unknown future and
Hartmann viewed them as reductivist, abstract forms. Hartmann's theme, derived from a structural and technological orientation to the city, undoubtedly was penned in response to and as a potential influence on Stieglitz, as further described below.

Other writers, however, joined Stieglitz in his non-structural ebullience. The burgeoning American metropolis both fascinated and frightened numerous contemporary Americans who had been weaned in the sylvan glades of Transcendentalism. More often than not, Manhattanite literary partisans forged links between romantic shadow and progressive speed. As noted by Wanda Corn:

The romantic imagery of landscape was...called upon to help define the new city. Skyscrapers were "stony cliffs," occupied by "cliff dwellers," and the streets running between them inevitably became "canyons." The Elevated was an "octopus," the suspension bridges "spider webs," the subways "rabbit burrows," and the lights of Broadway "fallen stars."¹⁷

Fascinated and daunted by the Flatiron's massive build, one writer termed the structure a modern Sphinx.¹⁸

The photographs Alfred Stieglitz created from about 1900 to 1904 are iconic works of decorative art, emblematic to the hilt. The influence of Puvis, the Symbolists, Rosicrucians, and late nineteenth century romantic literature notwithstanding, what unifies these images made by Stieglitz in 1902-04 is their indebtedness
to Japonisme.

The term Japonisme incorporates a variety of late nineteenth century European and American styles of painting, printmaking, and photography all influenced by the limited tonal schemes, flattening, skewed perspectives, and asymmetry of eighteenth and nineteenth century Japanese prints.

As practiced by American painters such as James Abbott McNeill Whistler, by printmakers such as John Sloan, and by photographers such as Stieglitz and Alvin Langdon Coburn (Fig. 51), Japonisme was a constructivist aesthetic. In the view of American art theoretician Arthur Wesley Dow, it could be described as an aesthetic of line, notan (light and dark relationships), and color. However, it was an aesthetic predicated not upon the abstractions of late nineteenth century science, such as Mach's, but upon the metaphysical and religious concerns Mach repudiated. A brief look at these issues makes the contrast clear.

The most cogent late nineteenth century theory relating to Japonisme, a generalist theory permeated with fin-de-siècle aestheticism, was that of the influential Oriental art scholar Ernest Fenollosa. Fenollosa, Dow's mentor, considered composition the partner of imagination:

It is a process as clear and exact as mathematics.
It implies the closest mental construction...in art, imagination is the faculty of thinking and feeling in terms of a single image. It implies the integrity, the wholeness and the purity of the image.

Imagination comes from the word "image"; not a fancy, not a dream, not a vague blur of consciousness, but a clear, unbroken image. It is a visible integer. 20

Fenollosa’s syntheses, moreover, involved mental and spiritual processes which he likened to those in a laboratory and the heavens. "Everything is plastic and sensitive, full, as it were, of chemical affinities, through which the just and crystalline balance can be rapidly found," he wrote. 21 According to Fenollosa, art and poetry evolved synthetically, one might say psycho-physically, through an exacting internal discipline which resulted in dynamic and interrelational constructions.

Mach had a similar theory concerning scientific discovery. In his writings he stressed the major roles played by abstraction and imagination. Idealization, he claimed, was an exact internal discipline through which bold thought experiments were forged. Mach’s idealization process was tripartite: first, essential concepts were abstracted from facts, from observations and from mental ideas. Secondly, these essential concepts were related, changed, and restructured through creative, synthetic reasoning. Thirdly, the resultant principles were interrelated with one another, and utilized to "sketch" facts in novel ways. However, Mach refused to
give absolute values to principles, as Fenollosa did. In his view all propositions from which observables could not be deduced must be discarded. 22

For Fenollosa, idealization was a process of abstracting from nature in such a manner that the artist sensed nature’s ultimate mysteries. 23 This explains why he and Dow, although couching their theories in mathematical terms, were deeply involved in the philosophical aspects of Japanese culture. In effect, they wished to assimilate the Eastern religious tradition and make it their own. Likewise, Coburn felt that the purpose of landscape photography was to express spiritual awakening or the substance of Tao.

Stieglitz, caught up in the mystical “Tao” or way of Photo-Secessionism, evidently also believed that this well-established Eastern aesthetic was one way to “pictorialist” perfection. (Recall that he was also interested in the abstract spiritual theories of the Munich Secessionists.) His support and promotion of Coburn verify that this was a period wherein mystic relationships, not rigorously scientific ones, were his chief concerns. And this is why Mach’s ideas were not important to him at this time. 24

However, at the same time he was extolling the virtues of a lovely, sensate, and static world of art created through “pictorial” instinct, Alfred Stieglitz
was publishing articles written from alternative, more dynamic premises. None of these was specifically scientific, although Sadakichi Hartmann and Charles Caffin, the first to espouse these ideas in the Stieglitz circle, were interested in theoretical science.

What unify the concerns of these two writers are two progressive matrices: the unity of experience and the dynamism of thought. These matrices, whereas not Mach-ist, are consonant with Mach’s. Most importantly, whereas they derived their ideas from various late nineteenth century philosophical and literary sources, Hartmann and Caffin illustrated them by either citing or inferring the influential role of Alfred Stieglitz. Stieglitz in turn would utilize their theories as stepping stones to a new, more cogent experimentalism.

**Stieglitz’s Progressive Critics**

The “raffish orphan of the American fin-de-siècle,”25 Carl Sadakichi Hartmann (1867-1944, Fig. 52) was born on the Japanese island of Desima to a Japanese mother and German father. His mother having passed away soon after his birth, Sadakichi was reared in the Hamburg, Germany home of Ernst Hartmann, his paternal uncle, who encouraged Sadakichi’s precociousness and early love of literature and the arts. His wayward ways having precipitated his father’s decision to send him to live
with his Philadelphia relatives in the summer of 1882, Sadakichi ultimately drifted off on his own, working first for two lithographic firms as a copier and stippler, then as a negative retoucher for a Philadelphia photographer. There Hartmann was able to feed his literary and artistic appetite with a voracious program of self-education.

Determined to be a part of the aesthetic and literary avant-garde on both sides of the Atlantic, from 1882 to 1892 Hartmann associated himself with key late nineteenth century thinkers, including Walt Whitman and Robert Henri in America, and Stéphane Mallarmé, Henri de Regnier, and Jules Laforgue in France. He made three trips to Europe during this formative decade, and in Paris he absorbed a substantial dose of both Symbolist psychology and Symbolist-mediated science. These helped him to formulate but did not delimit the outlines of his aesthetic of abstraction.

Although Hartmann knew members of the Society of Amateur Photographers and visited the photographic exhibitions they recommended, it was his association with Stieglitz that galvanized his many and varied aesthetic and philosophic interests, channeling them into photographic criticism. Hartmann probably met Stieglitz in the fall of 1897, when he was asked by the New Yorker Staats-Zeitung to write on art photography. That Hart-
mann was immediately taken with Stieglitz's experimental bent, aesthetic standards and enthusiasm can be seen in the resulting text. That he understood the posited but as yet unresolved materialistic and idealistic aspects of Stieglitz's work at this stage is also shown in Hartmann's astute early assessment.²⁸

Shortly after interviewing Stieglitz, Hartmann was tapped to write for Camera Notes, and when Stieglitz created Camera Work, Hartmann was asked in advance to be a contributor to the new publication as well. All told, Stieglitz commissioned twenty-one articles from Hartmann for Camera Notes and eighteen for Camera Work up through 1905, the period of his greatest influence. In addition, Hartmann also wrote essays on Stieglitz and the Photo-Secessionists for various other publications. Why Hartmann and Stieglitz found each other's ideas congenial is not difficult to surmise as the two men not only shared a bond of German heritage, language and education, they also shared an interest in Japanese aesthetics and modern technology, and each considered himself philosophically grounded in naturalism.²⁷

In short order, Sadakichi Hartmann emerged in the Stieglitz circle and on the amateur photography critical circuit as an advocate of neo-romanticism and serial imagery. Thinking of Stieglitz, he wrote in "A Few Reflections on Amateur and Artistic Photography," his
first essay for *Camera Notes*:

All American photographic clubs seem to strive for technical perfection.... They are not willing to stand three hours during a blizzard on Fifth avenue until the right moment for a successful snapshot has come. They do not consider that out of twelve prints perhaps only one is faultless. For that only patience and perseverance are necessary, and nobody can expect to have them to such a degree, except he [who] is truly devoted to the work he is doing.²⁸

By 1904 Hartmann had evolved this essentially reportorial gloss upon Stieglitz's aesthetic to a structurally oriented summary of its rigorously informative and formalist characteristics (in which Stieglitz apparently had lost some interest). He wrote in "A Plea for Straight Photography" in 1904:

Rely on your camera, on your eye, on your good taste and your knowledge of composition, consider every fluctuation of color, light and shade, study lines and values and space division, patiently wait until the scene or object of your pictured vision reveals itself in its supremest moment of beauty, in short, compose the picture which you intend to take so well that the negative will be absolutely perfect and in need of no or but slight manipulation.²⁹

Although in 1898 Hartmann stated that he admired Stieglitz's work because it reminded him of the paintings of the French *juste milieu* artist Giuseppe de Nittis,³⁰ it was apparent that he also admired the clarity of Stieglitz's ideas as they had resolved themselves into the abstract elements of his urban compositions.

In fact, what most interested Hartmann in photography in general was the challenge of abstraction, a challenge he believed only certain photographers had
mastered. "To be transformed into a pictorial phantasm may grant an acute sensation to the fastidiously inclined," he would write of Alvin Langdon Coburn in 1907, "but I prefer line and clear modeling to vagueness." By "line and clear modeling," Hartmann actually meant a Japanese artist's feeling for contour and form.

Although Hartmann had left Japan as an infant and derived his knowledge of Japanese art from museums, books, and reproductions, his notions about media, techniques, and cultural context were quite modern and correct. Unlike other construction-oriented writers of the period, for example Dow and Fenollosa (who interpreted Oriental aesthetics as decorative or metaphysical in intent), Hartmann viewed Japanese art as a calligrapher might interpret it. This is seen in his previously mentioned principle of "repetition, with slight variation." For Hartmann this was an active and empathic principle, realized through the calligrapher's compositional knowledge, dexterity, and individuality.

Although Hartmann considered only the principles of Japanese art—not the construction of relationships—scientific, his constructional, empathetic, and abstract notions were akin to those described by Mach. Hartmann's best application of these notions was to Alfred Stieglitz's photography, the "colossal Chinese letter" of which was the Manhattan urbanscape,
which he believed Stieglitz had the capability of deftly and abstractly "painting" in black and white.

Written in this vein was Hartmann's 1900 essay, "A Plea for the Picturesqueness of New York." This was not only his most eloquent and potent Camera Notes contribution, but it was also possibly the most substantial essay he wrote on art because it exerted a key influence on Stieglitz four years later.

Hartmann's "Plea" was virulently against the naturalism of P. H. Emerson in tone. This British photographer found urban subject matter distasteful. Rural scenes bathed in mist, often featuring reeds, ponds, and quiet fishermen, were his forte. Emerson apparently utilized photography to transport him to a pre-industrial, pastoral paradise. In "Picturesqueness," Hartmann denigrated those American romantic revivalists who refused to experiment. True pioneers, he wrote, steeped their senses in the Brooklyn Bridge, the new Speedway, dirty waterfronts, Paddy's market, and the Bowery. There, and only there, could the "large, sweeping curves" appropriate to the new epoch be found. The critic he noted should follow them; "I might be inclined to become [their] Ruskin," Hartmann proposed. 37

Taking into consideration Sadakichi Hartmann's intimate acquaintance with Whitman's writings, the surmise that he may have been thinking of the American
bard's tributes to Manhattan and its machinery when he wrote his "Plea" is more than plausible. Most importantly, he was reflecting on Stieglitz's photographic portfolio *Picturesque Bits of New York*, which included such urban images as *Winter--Fifth Avenue*, *A Wet Day on the Boulevard*, and *Reflections--Night* (Figs. 20, 40, and 23).

Considered in this context, even Stieglitz's biting New York images have a quiet and Eden-like quality about them; in the folio they became, in short, "picturesque bits" chosen to guide the collector through an artist's tour of Manhattan and Europe. (Interestingly enough, when preparing the portfolio Stieglitz did not crop *Winter--Fifth Avenue*, thereby preserving what are now considered superfluous, picturesque elements. He did crop the negative later in order to have a photogravure made for *Camera Work* and may also have done so in the 1890s for exhibition purposes.)

Thoroughly familiar with Stieglitz's urban oeuvre, Hartmann must have felt that this new presentation of it, although impressive, was a timid gesture on his friend's part. Thus, while not averse to promoting the portfolio, he felt it incumbent upon him to steer Stieglitz away from romanticizing his groundbreaking accomplishments any more than he had already.

With this carefully considered agenda in mind, Hartmann characterized the Manhattan skyline as both a
congeries of dynamic forms and the physical embodiment of a mathematician's diagram, "weav[ing] its networks with scientific precision over the rivers or straight into the air."40 Thinking of Stieglitz's depictions of New York at night, for example the hard and black archway of The Glow of Night (c. 1897, Fig. 53), he also analogized Manhattan to a colossal work of Chinese calligraphy. Later, in 1903, he used similarly radical metaphors to suggest that Stieglitz could photograph the Flatiron or, for that matter, any other modern building, from a direct, reductivist perspective.

What were other possible sources for Hartmann's novel approach? Were they the same as Stieglitz's? A similar paean to modern communication written by Helmholz in the 1870s might have been known to one or both men.41 It is also possible that Hartmann read works by the German scientific materialists, for example Ludwig Büchner's Kraft und Stoff (1858). Recall that for Büchner the laws of thought merged with those of external nature. Hartmann seems to have been more metaphysically inclined than Büchner, but in the German materialist vein he grounded his speculative ventures firmly in the urban "matter" that was New York.42 His writing in this manner paralleled Stieglitz's materialist concerns of the early and mid-1890s.

As mentioned, Hartmann's aesthetic also encompassed
notions that were more advanced: structurally premised, they mirrored ideas in contemporary science and would prefigure Stieglitz's move to Machist direct description.

Hartmann's dynamic approach to art in general (not just Japanese) is summarized in "On the Lack of Culture" (Camera Work, April 1904) where he wrote that only those artists are pioneers who forge new ways of seeing both from internal and external sources. Then, virtually appropriating Stieglitz's own stated premises of 1899, he claimed that

The methods of art are synthetical...it is itself in a great measure acquired, and not wholly intuitive. And this synthesis of knowledge means, and can only mean, the studying of life, of art, and the experiences of others....We have to earn the right to call an idea truly our own by hard mental labor and investigation.

For Hartmann, the pioneer artist was a "solitary horseman" who "seeks and might well stand for a symbol of the whole photographic movement, and in particular of the Secessionists, that class of eager workers who restlessly search for new pictorial possibilities." Certainly in this passage he was specifically applying his pioneer metaphor to Stieglitz, but Hartmann obviously felt that it dramatically symbolized the entire modern art movement as well.

Hartmann believed pioneer photographers and artists like Stieglitz were not just chroniclers of events, but
discoverers who evoked mystery and suggested action by means of new ways of seeing and new techniques. "Accuracy," he stipulated, is the bane of art," and "Modern Art....has taught every artist to delight in the report of his own eyes and to set it forth with all the elo-
quence he is capable of."46 A predisposition towards experience and mystery would enable artists to depict atmospheric effects and subtle, musical emotions: "It is the endeavor to perpetuate particular moments of human happiness, vague currents of the 'unsounded sea' which at rare intervals lash our feeling into exquisite activity."47

As noted, Stieglitz had formulated a similar philosophy while photographing Manhattan's avenues in the mid- and late-1890s. In 1900, however, the year Hartmann penned his most eloquent testimonies to experimental idealism, his American friend was still more interested in capturing "pictorial" effect than in pursuing pictorial possibilities. He was interested in Oriental art theories predicated on mystical and decorative premises, whereas physical endurance, largeness of conception, and experiential design were Hartmann's "Japoniste" precepts. The redirection of Stieglitz's ideas in the direction suggested by Hartmann (these ideas had been initiated, of course, by Stieglitz himself) did not occur until 1904, ironically the year their relationship dramatically,
albeit temporarily cooled.\textsuperscript{48}

Whereas Sadakichi Hartmann's modernism was a blend of neo-romanticism, romanticism, and Symbolism, Charles Caffin's was experientially idealistic. Like Alfred Stieglitz, Caffin was influenced by early nineteenth century notions of spiritual growth and development, but he evolved to instrumental theories whose premises were active rather than speculative. His ideas foreshadow the activist component of Photo-Secessionism, which Stieglitz engineered from 1905 to 1907.

Charles Caffin (1854-1918, Fig. 54) was a forward-thinking, eclectic expatriate English critic whose ideas could be traced to American as well as European sources.\textsuperscript{49} Formally educated at Cambridge University, Caffin moved to Chicago in the early nineties, where as a mural painter for the World's Columbian Exposition he began thinking along the technical, construction-oriented, and empathic lines established by John La Farge, Edwin Blashfield, and Puvis de Chavannes.\textsuperscript{50} From this seminal experience he must have derived his theory of structural design, which emphasized equilibrium, efficiency, lack of waste, and maximization of power.\textsuperscript{51}

Caffin's view of structural economy was also related to contemporary engineering philosophies, which originated in American authors' responses to the industrial revolution. The scientific source for these ideas
was the Law of Conservation of Force, formulated in the 1840s by James Prescott Joule, William Robert Grove, and Hermann von Helmholtz, and disseminated in the 1860s and 1870s by Herbert Spencer.\textsuperscript{52}

As further elaborated upon in American naturalistic literature, the concept of force came to be seen as an arbitrary concept, carrying along with it "implications of mechanistic and inevitable causality....expressive of the mind-set of most of the science of its age--materialistic, deterministic, reductive, and absolute."\textsuperscript{53}

However, American writers such as Henry Adams, who was influenced not only by Spencer, but by the Machist philosopher of science Karl Pearson and by Henri Poincaré, interpreted force as a quality of human inventiveness and creativity. Force for Adams was the means through which the inventor or artist wrested novel symbolic interpretations of existing reality, whether that reality be the sculpted Virgin of a Gothic cathedral or the dynamo. Most importantly for Adams and for Caffin as well, the engineered design was the product of the forceful genius.\textsuperscript{54} By the processes of analysis and synthesis, they felt, engineers examined existing conditions and created precisely tuned mechanisms in order to make those conditions work for human betterment. The engineers were America's "muscle and pluck."\textsuperscript{55}

Caffin believed the American spirit expressed
itself in technological as well as aesthetic creations. Both, he claimed, hewed to the tripartite goal of "selection, simplification and organic arrangement." Although he primarily applied these characteristics to nineteenth century American landscape painting (a field with which he was intimately familiar), Caffin admired these qualities in modern painting and photography as well. As Stieglitz had studied to become an engineer and as his urban photographs of the 1890s stressed structural coherence, he symbolized these ideas Caffin admired, initiating this writer's exploration of modern art.

Alfred Stieglitz probably met Caffin in 1898, when the latter, then a resident of New York and a successful free lance writer, published a review of the Philadelphia Photographic Salon, for which Stieglitz had served as a juror. Caffin continued to review the Philadelphia Salon through 1901, and in time he was commissioned by Stieglitz to write for Camera Notes and Camera Work. Caffin became involved in the planning for the first Photo-Secessionist exhibition of 1902; his writings document the founding of the Photo-Secessionist group. Between 1900 and 1905, Caffin and Stieglitz shared ideas freely, frequently discussing their respective philosophies of art.

Of greater import were the idealist and experimentalist ideas the two men shared. Indeed, what makes
Charles Caffin so significant in the context of early Stieglitz-sponsored criticism is his synthesis in Camera Notes of idealist and experimental thinking, a synthesis Stieglitz had also achieved in his photographs and writings, but not pursued.

Nature, Caffin explained in "Some Thoughts on Landscape and Nature" (October 1900), was no mere convention but a (R. W.) Emersonian magnificent Other: "in her loftiest mood [she] so completely dominates our little insignificant ego that the latter is swamped, lost; and this, by the way, is the great particular boon of nature." Not only should the great artist be nature's poet, but also nature's scientist, selectively analyzing phenomena in order to synthesize original ideas.

In "Some Thoughts," Caffin gave an early exposition of one of his key theories, that art is a rational process mediated also through feeling and instinct. Rather than advocating a primarily intuitive agenda for art, as did Hartmann, Caffin preferred to think of the creative mind as an elastic, sensual, and intellectual entity.

In "Impressionism; What is It?" written for the January 1901 Camera Notes, Caffin initiated a discussion about Impressionist construction, an issue that he felt needed clarification. Impressionism had been defined by late nineteenth century American critics as a novel mode
of seeing and painting keyed to the atmospheric richness of nature and intensity of vision. It was felt that American Impressionist paintings (for example, the urban landscapes of Childe Hassam) "captured the sense of change that permeated modern life." Nonetheless, pervading many American critics' interpretations of the movement was their view that this style "lacked passion, a major aspect of the American view of the artist as a discoverer of special reality."62

Caffin felt otherwise. His definition of Impressionism, which was important because as has been noted he applied it to Stieglitz as well, was predicated on perceptual and conceptual intensity—keen perception and an equally keen temperament. Utilizing his finely honed perceptual mechanism and the discoveries of science, Caffin believed, the Impressionist must carefully analyze his material. With his entire sensate being he would then bring his ideas of that material—at first amorphous, then clear—to synthetic fruition. Caffin believed these preconceived ideas inhere only in the "womb" of their artist creator; they constituted the body and soul of a living organism the artist alone could deliver.63

Not surprisingly Caffin claimed that Stieglitz was the quintessential Impressionist. In Photography as a Fine Art, he was described as the leader of this artistic
and scientific movement:

...fully conceiving his picture [Winter--Fifth Avenue] before he attempts to take it, seeking for effects of vivid actuality, and reducing the final record to its simplest terms of expression. He takes snap-shots, but does not touch the button until he has completely thought out the pictures, studied exactly the scene, conditions of light and position of the figures, and then bides his time until the conditions are possible, and then again waits for the figures, unconsciously, to pose themselves.64

It is true that for Stieglitz as well as Caffin, empirical observation (continual study of "conditions of light" and atmosphere) was essential. Pictures presented themselves not as preconceived arrangements of primary and subordinate figures, but as textural assemblages of shapes, tones, and color rendered more or less distinct as they positioned themselves closer or further away from the artist.65 Unlike Stieglitz, Caffin did not have a Helmholtz-educated eye, but he did have a perceptually acute sensibility. As he imagined a painted scene similar to Winter--Fifth Avenue:

...you could not be sure now, unless you had seen the wagon close, exactly what its build is; nor does one part seem nearer to you than another, its bulk has become flattened, and gradually the whole affair looks to be only a patch of color against the color of the road.66

As noted, Stieglitz's rationale for photography, so eloquently stated in his description of Winter--Fifth Avenue, was conceptually as well as perceptually based, entailing the "indirect description" of form mediated through two governing ideas, the physicality of that form
and the advancement of photography.

Caffin's rationale for photography and painting was also based on experimentalist and idealist principles. He believed the ideal photographer would place himself in a position to study the movements and transformations of a single subject or condition of light, and, through keen awareness of his own transformations as he became intimate with it, would create singular visions. Each subsequent "vision," simpler and clearer than the last, would manifest a transformation of personality, the true key to pictorialism.67

Dovetailing so closely with Stieglitz's (and Ernst Mach's) concept of idealism, Caffin's conceptual definition of the Impressionist viewpoint was a beginning formulation of his "intellectualized sensation" theory, one which paralleled other early twentieth century avant-garde scientific thinking. When Stieglitz was searching for a corrective to overabundant feeling (illustrated in works such as Spring Showers), he had only to reread Caffin to simplify and discipline his aesthetic.

From 1903 to 1907, when he was a Stieglitz "lunch circle" intimate and a prolific contributor to Camera Work, Caffin honed his critical skills regarding photography. After 1905, Caffin became a regular reviewer of the shows Stieglitz mounted in his Little Galleries of the Photo-Secession. He characterized these as a hub of
activity and a locus of force, and his comments about the Little Galleries echo the "universe of force" depicted by other contemporary American writers.68

For Caffin, Alfred Stieglitz was the force or controlling consciousness of the Photo-Secession. He explained, "The Photo-Secession, in fact, is all that one particular personality [Stieglitz] stands for, syndicated."69

Following along similar lines, Caffin also described Photo-Secessionist Eduard Steichen's photographs as artifacts of "force...introspective depth and subtlety of imagination." He was impressed by the way Clarence White's "mind...reache[d] beyond the local accidents to matters of wider and more abstract significance." Caffin did have some doubts about Alvin Langdon Coburn's prints because he sensed inertness and lack of imagination, although he noted that they were saved by a "firm constructional quality," the mark of temperament reinforced by knowledge.70 Such comments could not have been lost on Stieglitz, who actively promoted all three of these photographers.

Charles Caffin's early writings apply the principle and the prophecy he described in 1905 in a *Camera Work* article "Of Verities and Illusions." There he wrote that art has nothing to do with organized systems, allegories, formulas or theories. Prescriptivism, the approach
photographers such as F. Benedict Herzog preferred and Stieglitz had toyed with in his aesthetic phase, was for Caffin too nineteenth century, a "jumble of honesty and quackery, of truth and flummery, of verities and illusions, well nigh overwhelming." Caffin believed that mystical Symbolism, the philosophy underlying Stieglitz's Secessionist images, was nothing but "a hyper-esthetical condition of the nerves that tends to atrophy of mind."

If art was to emerge from these academic, pseudo-experiential doldrums, Caffin felt it must become instrumentally idealist and symbolist. The sole avenue of life open to painting was abstract expression. Musicians and scientists were already thinking abstractly; Caffin believed it was up to painters and photographers to do likewise.

Interpreting abstraction as the constructive, informing language of the active, experimental artist, in 1905 Caffin would, along with Stieglitz, embrace idealism as the philosophy of the new scientific age. It was Caffin’s conviction that the nature of symbolism, like the nature of abstraction, was undefinable. The task of the artist, however, was definable: to accept the underlying order of the universe as a gift and prime motive, to investigate the tempos and rhythms of modern life, and to break down boundaries that prevent the mind from hypothesizing. When Alfred Stieglitz set about to
make the Photo-Secession a laboratory of ideas and to reorient his photographs along similar lines, Charles Caffin’s directives helped him to formulate their shape and structure.

However, during the period 1898-1903, when Caffin and Hartmann were writing for him, Stieglitz believed that the work he and his colleagues were exhibiting already represented photographic perfection. It is true that Stieglitz considered the emergent Photo-Secession to be the standard bearer of creative expression and technical excellence in the international amateur photography world. It is also true that this organization elevated the disciplines of art and experimental science. Of the two, however, art was the more elaborated and the more highly regarded. Elitism and dogmatism, sprinkled with a heavy dose of the fin-de-siècle aestheticism photographers admired (as seen, for example, in Käsebier’s and Stieglitz’s Symbolist prints of c. 1902-04) helped the Photo-Secession garner leadership status in the fine art photography world.

Writers and partisans (for example, G. B. Shaw) whose ideas could substantially broaden the theoretical base of the Photo-Secession were welcomed into the Stieglitz milieu. Caffin and Hartmann were wide-ranging thinkers whose interests encompassed not only photography, but Eastern and Western art. Students, critics, and
scholars of *fin-de-siècle* aesthetic trends and the salon photography movement, through their prolific writings they made artistic photography a familiar genre and the Photo-Secession, a familiar term. In a period marked by controversy over the relative merits of illustrative versus evocative photographs, they argued clearly in favor of the latter, and this led Stieglitz to designate them as being in the advanced guard of his own pictorialist movement.

As has been suggested, at the turn of the century Caffin and Hartmann were pivotal to Stieglitz in more ways than one. At the same time they were favorably assessing Stieglitz's accomplishments and photographic work in the pages of *Camera Notes* and other amateur photography journals, they were subtly criticizing them. They praised the very qualities that Stieglitz, the Photo-Secessionist leader and spokesman, was tending to obscure in absolutist, obscurantist rhetoric, to wit: they discussed clear, concise thought processes and reductivist, abstract expression. Rather than presenting Stieglitz as the new photographic messiah (he himself had proclaimed the Photo-Secessionist creed to be "personal salvation"), Caffin and Hartmann described him as proting and hard-nosed, the thinking man's photographer who would make no statement until its lineaments were precisely and conceptually ordered. Their slant was not
delicate or flowery (as Stieglitz's "secessionist" prints tended to be) but pointed, vigorous, and direct (as his post-"secessionist" prints would become). Ignoring the poetic veils with which Stieglitz was then garbing his images, they concentrated instead on his crystalline approach toward nature, the urban scene, art, and design.

Stieglitz must have been cognizant of the fact that the experiential views of Caffin and Hartmann were fundamentally consonant with his own, scientifically premised ones. In Camera Notes he published their articles and other pro-modern discussions on creative photography and motion back-to-back.74 It is tempting to speculate that, with the turn-of-the-century expositions of Caffin and Hartmann, the Photo-Secessionist laboratory aesthetic, compounding sensibility, perceptual intensity, technical experimentation, and personal initiative, was born.

However, by 1902-03 Stieglitz apparently had decided that Caffin's and Hartmann's comments, however commendable, should not be considered personal directives. Indeed, this period, the emergent phase of the Photo-Secession, was a time of flux and indecision in the Stieglitz milieu as the progressive ideas of these critics continued to lock horns with secessionist stasis.75 Stieglitz himself would not move beyond secessionist poetics until 1904-05, when Hartmann,
Caffin, and Frederick Evans proselytized aesthetics of straight photography, undoubtedly encouraging him to do likewise. Nonetheless, Stieglitz did interpret the progressive notions of these two critics to be harbingers of change which should be reinforced.

The following chapter traces the dynamic reorientation of the Photo-Secessionist venture, first in the writings of critics selected to further elucidate experimentally-premised creation in Camera Work (initially conceived as a pictorial and editorial equivalent of Photo-Secessionist Symbolism), then in Stieglitz's actions on behalf of the experimentalist aesthetic they prophesied. The latter would constitute his fourth and most crucial linkage of art to science.
NOTES


2. Hartmann and Caffin were exceptions to this trend, as this chapter demonstrates. However, not being active photographers themselves, they could more easily distance themselves from salon aesthetics as proselytized by, for example, Hinton and Keiley. Evidently stimulated by the experiential ideas offered by Hartmann and Caffin, Keiley became a more dynamic thinker as the century turned. This is evidenced in the early issues of Camera Work, described in Chapter Eight.


4. The term "secession" is enclosed in quotation marks when applied to Stieglitz's turn-of-the-century photographs. This is meant to differentiate these from the organization, the Photo-Secession, which although formed as an aesthetically oriented club, reoriented itself to dynamic and radical agendas when Stieglitz, its director, reoriented his views.

5. Stieglitz may not have known this painting; however, as it is typical of Khnopff's landscape work of the decade 1894-1904, I have seen fit to posit his influence on Stieglitz.


7. Roessler, quoted in Weiss, p. 44.

This change in sensibility is underscored by Stieglitz's own comments. In 1897, commenting on his images of New York City in the winter, he wrote, "A little blur in a moving subject will often aid in giving the impression of action and motion." By 1902 he was totally

8. This is a transitional image, pointing the way to The Steerage of 1907 because of its latent dynamism.

9. As noted in Chapter Five, this photograph actually forms a part of Stieglitz's naturalistic series. Dated 1903 by Marianne Margolis in her book Camera Work, a Pictorial Guide, it may actually have been taken at an earlier date, then reprinted for Camera Work. Stieglitz did engage in this practice at other times, as Margolis's chronological compilation of illustrations makes clear.

10. Hartmann, "Repetition, with Slight Variation," CW no. 1 (January 1903):30. It should be noted that Hartmann, a published historian of American as well as Japanese art and a well-informed critic of European painting, could have recommended the illustrations to Stieglitz, rather than the other way around. Since Camera Work was created by Stieglitz, and since he initiated its publication with a definite purpose in mind which required photographic confirmation, it is most likely that Stieglitz selected the photographs himself, then asked Hartmann, the critic with the most applicable credentials, to write about them.

11. The ultimate source for this motif is in Japanese prints, for example Ando Hiroshige's Moon Pine at Ueno from One Hundred Views of Famous Places at Edo (colored woodcut, 1858). In her article on Stieglitz's photograph of the Flatiron, Sarah Greenough did comment that Stieglitz made an effort to relate the edifice to nature, but felt his intent was to place the two in competition with one another. Her interpretation, however, has not clarified how "an ominous competition between the fraility of nature and the monolithic structures of the new city" could be reconciled to Stieglitz's organicist statement, "[it is] a picture of new America still in the making" (Greenough, "Alfred Stieglitz's 'The Flat Iron Building,'" Exposure 15 [September 1977]:29).

Reconsidering this photograph in a decorative context and along with the others listed above, it should also be mentioned that the poster was a key Symbolist art form; Aubrey Beardsley, Edouard Vuillard and John Sloan (all of whom may have been known to Stieglitz) were masters of the genre.


14. Ibid. It is important to note that these comments, relayed by Dorothy Norman many years after the picture was taken, probably reflect a self-adulatory attitude not present in 1903. Lacking any other version of the story, I have had to take the older Stieglitz at his word.

15. Hartmann, "The 'Flat-Iron' Building.—An Esthetical Dissertation," *CW* no. 4 (October 1903):38. In this essay and in a correspondent poem published back-to-back with it, Hartmann revealed the key sources of his critical aesthetic. His naturalism is shown in his reference to common-sense use of materials (although he erred in thinking the structural members of the Flatiron were iron; they were in fact steel), his romanticism surfaces in an identification of New York as the domain of gods, and his American vitalism emerges in his description of the New York urbanscape as a sunlit harbor village. Synthesizing these concepts is Hartmann's abstract ideal, like Mach's keyed to economy of thought (Hartmann, "To the 'Flat-Iron,'" *CW* no. 4 [October 1903]:40).

16. See note 27.


Meanwhile, across the Atlantic, the French Symbolist brotherhood called the Nabis (known to Stieglitz and Hartmann, who were both in Paris during the early 1890s, through their annual exhibitions there from 1890 to 1896) was retreating from the frenzy of modern life into the stillness of the occult. The Nabi painter and critic Maurice Denis, for example, wrote favorably about the decorative arts of the Hindus, Assyrians, Egyptians and Greeks because these styles represented not vulgarity (a quality of realism), but worshipful piety. For Denis in 1890—and for Stieglitz and Hartmann after him—Greek architecture was a "sacred, hermetic and imposing icon." Moreover, for the three artists art and architecture were also expressions of "concrete beauty, and our senses must discover in the work of art itself—abstraction made of the subject represented—an immediate satisfaction, a

Future studies might address possible parallels between the Stieglitz circle and late nineteenth century French aesthetic theory. A first attempt is Judith Zilczer's "Anti-Realism and the Ashcan School," Artforum 17 (March 1979):44-49.


21. Fenollosa, "The Nature of Fine Art," The Lotus 9 (1896):756, quoted in Marianne Martin, p. 159. Evidently Fenollosa read scientific journals or books, probably of the popular variety. In "The Logic of Art," Fenollosa wrote, "The trained soul of the artist, while not itself the principle of crystallization, is just the peculiar solvent or medium in which the crystallization occurs. The real crystallization is in the units of the art itself... 'Art is a saturated solution of all the involved elements in terms of each other'" (Fenollosa, "The Logic of Art," in The Golden Age 1 [May 1906]:230-35, quoted in Lawrence W. Chisolm, Fenollosa: The Far East and American Culture [New Haven and London: Yale University Press, 1963], p. 204).

Fenollosa's use of the term "crystallization" prefigures Stieglitz circle painter Max Weber's use of it to define his paintings of 1911.

22. Feyerabend, pp. 2-9 and Hiebert, p. 599.

In the Machist, dynamic system of thought, critical absolutes were impediments to creativity. In this view sensation would be a structural, not a mystical concept. As Mach described it:
...we call all elements, in so far as we regard them as dependent on this special part (our body), sensations. That the world is our sensation, in this sense, cannot be questioned. But to make a system of conduct out of this provisional conception, and to abide its slaves, is...unnecessary...(Mach, *Popular Lectures*, p. 209).

Alfred Stieglitz was well aware of these ideas. From at least 1889, he had sought to describe concisely the places, people, natural phenomena and urban structures that keenly interested him. Furthermore, beginning in the late 1880s he had sought mathematical coherence (one example being the interlocked wedge shapes in *Stones of Venice*—Chioggia, Fig. 6), reducing the elements of his photographs to the minimum in order to convey their underlying geometries. But in the years around 1900 Stieglitz was not ready to accept the philosophical implications of Machist conceptual thought. In order to define art as a condensation of experience (adapting thoughts to thoughts and thoughts to facts and rendering these thought experiments in a formal language), he would have to discard metaphysics—Mach's "system" of making the world our sensation. (The reference here of course is to Schopenhauer, with whose ideas Stieglitz was also familiar.)

This was far too radical a leap for one who was then defining modernity as "direct[ing] and mold[ing] as he wills virtually every stage of the making of his picture [not his conception]...to produce almost any effect that his taste, skill and knowledge may dictate" ("Modern Pictorial Photography," p. 825. Note Stieglitz's revised definition of "effect").

23. He specified that these relationships required "a pregnant language; rich, juicy, significant, full words, charged with intense meaning at the center, like a nucleus, and then radiating out toward infinity, like a great nebula" (Fenollosa, "The Nature of Fine Art," quoted in Marianne Martin, p. 159).

24. Alvin Langdon Coburn (1882-1966), a protégé of F. Holland Day, spent his early, formative years in London in the company of master manipulative pictorialists such as Robert Demachy, Eduard Steichen, and Frank Eugene. Both from Day and from the "Links," with whom he exhibited, he developed a penchant for mystic religions and philosophies. In his portraiture, begun in earnest in London in 1904, Coburn sought to project images of inner spirituality; he felt he could reveal that spiritu-
ality "at once" with the release of his shutter (Mike Weaver, "Alvin Langdon Coburn, Symbolist Photographer 1882-1966," Aperture 104 [Fall 1986]:24). In his landscape photography, Coburn looked for "the little piece that matters in the midst of nature's massiveness, and (by dint of focal adjustment and so forth) concentrate[d] the interest on that" (Coburn, interview by Dixon Scott, cited in Mike Weaver, p. 29).

Stieglitz began to promote Coburn's work on a regular basis beginning in January 1903, a month after Cobrun was named a Fellow of the Photo-Secession.


26. Hartmann, "Art Photography and its Relationship to Painting," 1898, cited in Jane Weaver, "Sadakichi Hartmann: Herald of Modernism in American Art," Ph. D. dissertation (University of North Carolina at Chapel Hill, 1985), 1:161. Weaver's dissertation is both a substantial documentary effort and a somewhat less significant critical one. Whereas she has located and organized a massive amount of material written by Hartmann in his modernist (c. 1890-1915) phase, she has not evaluated this material as cogently as might be hoped. Her main thrust is to establish his Symbolist connections and interest in Symbolist painting, but these are not integrated into any sort of dynamic or evolving philosophy, which Hartmann's indeed was. Furthermore, her chapter on Stieglitz deals with the relationship between the two men and traces Hartmann's association with the Photo-Secession chronologically rather than thematically. My intent is to evaluate the aspects of Hartmann's philosophy which were most significant for Stieglitz in his transitional phase 1898-1905: his technological interests and his abstraction. These are merely peripheral concerns for Weaver.

27. During his Philadelphia period, which lasted from 1882-1887, Hartmann's naturalism and vitalism emerged. These were fueled by two "primary" sources, the poet Walt Whitman, whom he met in 1884 and subsequently interviewed at length (his Conversations with Walt Whitman was published in 1895), and the painter Thomas Eakins, whose work he studied and later wrote about. For the young Hartmann, these two men exemplified "Native Independence, Simplicity and Force" (Hartmann, dedication to Thomas Eakins, in Conversations with Walt Whitman, 1895, cited in Weaver, 1:18). The young Hartmann was impressed by Whitman's technological optimism, his vision
of an ideal future shaped by the artifacts and mechanisms of American technology, and his creed of artistic freedom, which stipulated that the artist or writer must find a content, form and tone strong enough to change his own philosophic direction as well as the thought of others. Whitman’s equation of scientific materialism and mysticism seems to have likewise affected Hartmann as he was developing his own similar philosophy.

Eakins’s concentration upon physicality and experience, his study of compositional structure, and his investigations of movement also made a significant impression upon Hartmann. In a pioneering article of 1897, he called Eakins a "rugged, powerful personality," terming his paintings "severe," "manly," and "muscular" (Hartmann, Art News 1 (April 1897):4, cited in Weaver, 1:100). Although Hartmann did not mention Eakins’s photographic work in reference to his own critical and practical interest in the medium (Hartmann wrote his first article on photography in 1898, and experimented with various photographic processes), it is possible that he knew of Eakins’s photographs. This would seem likely since motion photography, a specialty of Eakins’s, was to engage Hartmann’s interests from about 1900 to the end of his professional career.


34. As he wrote in his 1904 book on Japanese art:
If the Japanese artist wants to depict a flight of cranes, he draws a half-dozen or more, which at the first glance look alike, but which on closer scrutiny are each endowed with an individuality of their own. He foregoes perspective and all other expedients; he simply represents them in clear outlines in a diagonal line or sweeping curve on an empty background, and relies for his effect upon the repetition of forms (Hartmann, *Japanese Art* [Boston: L. C. Page & Company, 1904], p. 85).

As early as 1898, Hartmann had begun experimenting with Japanese forms of poetry. That year he published an essay on *tanka*, *haiku* and other metrical types entitled "The Japanese Conception of Poetry." In 1909 seven of his own *tanka* poems were published in *The Stylus*. Undoubtedly Hartmann practiced calligraphy as well, although examples of his work have not come to light. But, from no other perspective than personal experience could he have stated:

> The colossal character of white snow might readily be taken as a symbol of Japanese art, for the manipulation of the painter’s brush is strictly calligraphic. Japanese writing in itself is a sort of painting. Some of the characters of the written language resemble the trees and bridge posts as drawn by certain artists. And do not the gateways of the Japanese temples—these quaint constructions, consisting of two pillars that support horizontally a lintel with projecting ends and a tie-beam—remind one involuntarily of some colossal Chinese letter, which has been painted against the sky with four sweeps of vermilion by a giant brush? (Ibid., pp. 60-61)


Greenough has pointed out that Stieglitz's European photographs of the mid-1890s are less atmospherically potent that his New York ones; as European subjects were sufficiently picturesque, they did not need to be intensified by a setting of inclement weather ("Stieglitz's Flat Iron," p. 29). A Wet Day on the Boulevard would have to be considered an exception, although, as pointed out here, it is more quiescent than turbulent.

39. As noted in Chapter Six, Dreiser found the photographs in the portfolio "uncomfortably" realistic.

40. Hartmann, "Picturesqueness of New York," pp. 94, 97. Despite his apparent, continuing inability to distinguish heavy iron from lightweight steel construction, Hartmann evolved an aesthetic keyed to twentieth century structures.


42. Another source for Hartmann may have been Edmond Duranty, whose naturalist criticism we have already related to Stieglitz's serial photographs of the 1890s. In his essay, "The New Painting" (1876), Duranty discussed the Impressionist painters' viewpoints and modern settings, the latter in a list format that Hartmann reinforced and deepened. Duranty is an interesting figure in the context of scientific criticism and deserves to be studied in greater detail.

43. Hartmann stated:

...they have to forage in both and combine their treasures, or they will never be able to create those beautiful forms that blend nature and soul in a perfect and exquisite fashion. All personal progress requires concentration on subjects outside oneself and one's sphere, the quest for knowledge in the realms of music, literature, philosophy, and science and intellectual pleasure and amusement ("On the Lack of Culture," CW no. 6 [April 1904]:20).


In "Pictorial Photography" Stieglitz stated, "the ability to make a truly artistic photograph is not acquired off-hand, but is the result of an artistic instinct coupled with years of labor" (p. 528).

45. Hartmann, "The Solitary Horseman," CW no. 7
(July 1904):17.

46. Hartmann, "The Value of the Apparently Meaningless and Inaccurate," CW no. 3 (July 1903):17.

47. Hartmann (as Sidney Allan), "The Technique of Mystery and Blurred Effects," CW no. 7 (July 1904):25.

It should be noted that Sadakichi Hartmann was far from independent of romanticism. Like the contemporary American writers William Dean Howells, O. Henry, and Louis Baury, he apparently found the new Manhattan the reincarnation of an exotic fairy tale village. However, such a city's magical profusion of perfumed colors and steely wires suggested new laws of aesthetic composition to him, like Japanese principles stripped of romantic ornamentation.

48. On the dénouement of the Hartmann-Stieglitz relationship from 1903-15, see Weaver, 1:184-200.

49. In her documentary and critical study, Sandra Lee Underwood has made much of Caffin's indebtedness to Whistler and to Whistler's theory of abstract expression (Charles H. Caffin, A Voice for Modernism, 1897-1918 [Ann Arbor: UMI Research Press, 1983], pp. 15-20). Whereas the idea of musical analogy was undoubtedly transmitted to Caffin by Whistler's writings and paintings (Walter Pater was also instrumental in this regard), abstraction had a broader and more modern significance for Caffin. It is Caffin's technological and scientific frame of reference (briefly touched upon by Underwood and not mentioned by other scholars) that is stressed here.

50. H. Wayne Morgan has pointed out that two aspects of nineteenth century mural painting made it an apt vehicle for a technical aesthetic: abstract form and abstract thought. According to Frank Fowler, a commentator of the period, decorative art required scientific acumen, "that splendid power of deduction and synthesis...which divests the forms of nature of all that is not inherently large and noble" (H. Wayne Morgan, New Muses: Art in American Culture 1865-1920 [Norman: University of Oklahoma Press, 1978], p. 54 and Frank Fowler, "The Outlook for Decorative Art in America," Forum, February 1895, p. 690, quoted in Morgan, p. 54). Along with La Farge, Blashfield and Puvis were influential theorists of the American mural painting movement.

51. Although he wrote articles premised on this viewpoint during the first decade of the twentieth
century, Caffin examined it thoroughly in his 1913 book *Art for Life’s Sake*.

52. For example, Helmholtz’s formula, published in his 1847 text *Über die Erhaltung der Kraft*, then elaborated on in other scientific publications, is as follows:

In all cases of the motion of free material points under the influence of their attracting and repelling forces, the intensity of which depends solely upon distance, the loss in tensional force [what was later called potential energy] is always equal to the gain in *vis viva* [later, kinetic energy], and the gain in the former is always equal to the loss in the latter. Hence, the sum of the tensional forces and vires *vivae* present is always constant. In this more general form, we can call our law the principle of the conservation of force (Helmholtz, "The Conservation of Force: a Physical Memoir," 1847, cited in Ronald Martin, p. 22).

Helmholtz’s views on the implications of this law were among the ones transmitted to literary partisans of science, among whom Caffin can assuredly be grouped. Helmholtz commented, "The ultimate aim of physical science must be to determine the movements which are the real causes of all other phenomena, and to discover the motive powers on which they depend; in other words, to merge itself into mechanics" (Helmholtz, *Popular Lectures*, cited in Ronald Martin, p. 24). As Martin has summarized Helmholtz’s force philosophy, "it is rational, describable, and to a great extent humanly controllable" (Martin, p. 24).


54. "Adams’s historical search for the corps of ‘active-minded’ philosopher-technicians of America was a quest for those ‘who count as force even in the mental inertia of sixty or eighty million people’" (Henry Adams, *The Education of Henry Adams*, 1907, cited in Tichi, p. 138).

In Adams’s and other late nineteenth century writers’ views, engineers, the heroes of the time, were "true poets, makers whose creations touch the imagination and move the world" (Richard C. Maclaurin, ed., *The Mechanic Arts*, vol. I [Boston: Hall and Locke, 1911], p. xxv, cited in Tichi, p. 97).

104. A cogent account of the influence of technology in turn-of-the-century American literature is Tichi's Chapter Three, "The Engineer."


57. One such interchange concerned the idealist aesthetics they both espoused. Caffin wrote to Stieglitz in 1905:

You, however, I fancy have thought...much farther than I in the direction of the Universal; that is to say, in the realization of one's own ego being not a personal one...but a part of the great spiritual cosmos...a link in the elemental sequence (Caffin to Stieglitz, 12 July 1905, quoted in Underwood, p. 136).


It is obvious in Caffin's writings that he considered Ralph Waldo Emerson's Cambridge Address of 1837 to have ushered in a new era of intellectual and spiritual independence. In 1907, he repeated the poet's salvo, "Our day of dependence, our long apprenticeship to the learning of other lands, draws to a close" (Caffin, Story of American Painting, p. 47, cited in Underwood, p. 77).

59. Caffin continued:

This distinction of sentiment in a picture is worth consideration; for many people are inclined to look only for what they suppose to be the evidence of strong personal feeling on the part of the artist; by which they mean his making nature interpret his own mood, forgetting that the strength of feeling may quite as well be shown in the abnegation of self and in the increased vitality and meaning thereby extracted from the scene....

I feel that in the best American landscapes...subtlety is reached....The analysis has been keen and searching; the synthetical arrangement, really so mysteriously involved, appears so simple and conclusive, that it is a delight both to one's intelligence and emotions (Caffin, "Some Thoughts," pp. 6,8).
60. Caffin later wrote about his decorator position as follows:

One day I was enlarging a piece of ornament, in which there were scrolls of acanthus leaves; big cabbagey sort of leaves, with a curving spine and crinkly edges. The chief point was to get fine winding lines into the curves. For a long time I imitated the copy as well as I could, when suddenly I seemed to feel within me just how the curve should go. It was not a matter of seeing the copy, but of feeling the actual growth in my brain. And lo! a miracle, for one moment my hand was able to do what my brain prompted. That leaf actually grew under my hand. I could feel it growing. And of course that was the best bit of the whole drawing. The rest was mechanical; this bit really lived....in that moment I learned two things--firstly, what must be the joy of an artist in the act of creation; and, secondly, that an artist's line may be a living growth; and, in the case of really fine draughtsmen, always is (Caffin, A Child's Guide to Pictures [New York: The Baker & Taylor Company, 1908], pp. 222-23).

61. In addition to the scientific theories discussed above, Walter Pater's aesthetic theories, which formed part of Caffin's British heritage, may also have been instrumental in fueling his speculations. Pater had based his 1873 text The Renaissance upon critical experimentation; his ideal was the Claude Bernardian positivist scientist who examined, tested, and hypothesized about the virtues of phenomena. Pater's sensually based vocabulary included such key terms as "impression," "relative," "pleasurable sensations," and "discrimination." See I. C. Small, "The Vocabulary of Pater's Criticism and the Psychology of Aesthetics," British Journal of Aesthetics 18 (1978):81-87.


63. Caffin, "Impressionism; What is It?" CN 4 (January 1901):33.

64. Caffin, Photography as a Fine Art, pp. 39-40.


67. "I can imagine [the artist] viewing a land-
scape, forming in his mind a large and simple conception of its beauty as he sees it, exposing his plate and then in the subsequent stages eliminating and strengthening, until he reaches the synthesis he dreams of. Working in this spirit, if he has the poetry in him, he will express it in his print" ("Impressionism," p. 138).

68. Caffin stated in 1907:

The [Photo- Secession], springing from a somewhat obscure source in a tiny trickle of adventure, gathered to itself the force of its own convictions, until it is now rolling on in considerable flood, pushing forward its course with something of the indifference that the Mississippi exhibits to the workers and loafers along its banks. The stream is broad, there is room for many kinds of craft, and each under its own form of motive power has the freedom of the river, provided its bow is set with the stream in the direction of the deep, wide ocean....It is a product of that mixture of faith and logic, of logic jumping with instinct, of back-knowledge, present grip, and foresight which characterizes its most active leaders (Caffin. "Tweedledum and Tweedledee," CW no. 9 [July 1907]:27).

In his 1901 novel The Octopus, Frank Norris described nature as "a mighty force, the strength of nations, the life of the world....Indifferent, gigantic, restless, it moved in its appointed grooves. Men, Lilliputians, gnats in the sunshine, buzzed impudently in their tiny battles, were born, lived through their little day, died, and were forgotten; while the Wheat, wrapped in Nirvanic calm, grew steadily under the night, alone with the stars and with God" (Norris, cited in Ronald Martin, p. 169).


71. Caffin’s most scathing article was a critical "review" of Herzog’s work ("Is Herzog Also Among the Prophets?" CW no. 17 [January 1907]:17-22).

in Camera Work, but did not subscribe to the emotional excesses they condoned. See, for example, "What is Fin De Siècle," The Art Critic, 1893-94, quoted in Jane Weaver, 1:63.

73. Stieglitz, "Photo-Secession--Its Objects," p. 82.

74. For example and as noted, in the years around 1900 Hartmann developed a psychologically progressive aesthetic of abstraction, that is, an aesthetic predicated upon free thinking. Hartmann had the critical acuity to see that the vision of the future, whether in painting or photography, entailed leaps of consciousness into the abstract.

Not surprisingly, Stieglitz circle intimate Dallett Fuguet moved towards a more powerful, psychological approach to art and to criticism at this time. He published an article on criticism for the October 1900 Camera Notes (the same issue in which Hartmann's essay on picturesque New York appeared) entitled "Maker and Critic." His thesis here was that the artist and critic both operated from internally generated premises, from "original force." For Fuguet, the artist led the critic in qualities of sensibility and sensitivity. The best critic, however, should incorporate into his writing qualities germane to the artist as well as his his own logical faculties. The best critic was thus the artist himself, the man of self-culture and instinctive drive. Fuguet wrote:

For us in photography who (whatever we may be potentially) are neither clearly artists nor critics, it is well to remember that critical taste and artistic gifts must be developed by processes within ourselves, and mainly by ourselves. The poet is born, not made; but the poet that accomplishes great things has realized his possibilities by self-culture more painstaking and through than the care given the finest prize flower or fruit; and this is equally true of those who are successful in any kind of artistic work....Each worker must learn to depend a great deal on his own observation and taste....the "germ of art instinct" must be in the student (Dallett Fuguet, "Maker and Critic," CN 4 [October 1900]:78, 80).

Together with Hartmann's comments on criticism, Fuguet's theses relate Camera Notes's aesthetics to late nineteenth century American constructional aesthetics.
Based upon the unity of the mental, the manual and the imaginative, this trend encompassed the writings of John La Farge, Edwin Blashfield, Dow, Ernest Fenollosa, and adherents of the Arts and Crafts movement. Fuguet and Hartmann emphasized feeling and motion, however, which places them in a more advanced position than that of certain of their construction-oriented contemporaries, who looked backwards as well as forwards. As Virginia Mecklenburg has pointed out, the critics and artists of the American Renaissance, 1875-1913 (she has correctly cited Blashfield, Will H. Low and Frank Jewett Mather) claimed descent from Sir Joshua Reynolds; for them "long-established precedents provided the intellectual framework, technical guidelines, and potential directions for contemporary art" (Mecklenburg, p. 66).

Caffin's synthesis of the emotional and the intellectual and his advocacy of hypothesis formation and experimentation seems to have raised a flurry of arguments, which Stieglitz, in his capacity as mediator, was evidently eager to see elucidated. The result was "A New Power of Artistic Expression," published in Camera Notes of July 1901 by the future Photo-Sectionist photographer F. Colburn Clarke. (Caffin's article on Impressionism had appeared in the January 1901 issue of the same journal.)

Clarke's description of the ideal photographer is worth quoting in full:

But if one being combined these two capabilities [the artist and the scientist] what might not result? Such a combination of talents is not impossible. Whilst a knowledge of chemistry is not essential, yet to produce the best results one should combine an understanding of the influence of chemicals upon the paper and the nature of the images they produce, together with the taste, culture, refinement and discriminating power of an artistic temperament. Would not one so endowed succeed in lifting this branch of art above the mediocre? (F. Colburn Clarke, "A New Power of Artistic Expression," CN 5 [July 1901]:25).

For Clarke, critical judgment erred in looking for results rather than process. He also compared the artist, and by implication the critic, to a gem cutter who, having been presented with a stone of high value, polishes and cuts it until it attains the form that he originally conceived for it, a form beautiful in organization and arrangement.
75. Hartmann's 1903 article on the Flatiron Building and Stieglitz's less advanced views have already been noted. In "Edward Steichen's Work--An Appreciation," Caffin stated, "Whereas, the charge against the camera has been that it sees too indiscriminately and in detail, it would appear that it is capable of reaching a certain simplification more readily than the painter can" (CW no. 2 [April 1903]: 21). The problematic context in which these ideas were presented is more fully explored in the following chapter.

76. This transitional period is discussed in Chapter Nine.
CHAPTER EIGHT

THE LABORATORY OF THE PHOTO-SECESSION, c. 1905-10

Conflict and Transition

By establishing the Photo-Secession in 1902 as an organization committed to individual salvation and the progress of photography, Alfred Stieglitz had outlined not a program, but a potential trap for self-contradiction.

What were interested photographers and photography connoisseurs to think of a man who purported to make this new salon-oriented club the progressive heir to the Linked Ring, then proceeded to establish rigid requirements for membership, citing morally correct attitudes and support of a "standard"?1 How would experimental scientists evaluate a fledgling organization which had been weaned in the top-notch laboratories of the New York Camera Club, then reared in an ivory tower?

Rather than foster a dynamic forum for the defense of research and ideas in an open setting and through periodic meetings, lectures, and demonstrations, as he had in the Camera Club, the director of the Photo-Secession stipulated "the right to send a collection [of photographs to an exhibition] which would be accepted as a whole without submission to a jury."2

Was this the same man who, four years earlier, had
termed photography the "favorite hunting ground of the scientist and experimentalist"? The reputation of the Photo-Secession grew tremendously during the first two years of its existence, but "underneath it all [was] the voice of Stieglitz, at once demanding, cajoling, and defensive"--and one might also add, unsure of his mission.4

Nowhere were these contradictions more evident than in Camera Work.5 Alfred Stieglitz's crowning editorial achievement, Camera Work flourished from 1903 to 1917. It spanned more than a decade of aesthetic experimentation and revolution in modern art, and, as shall be demonstrated, fomented a revolution of its own. In its initial years, however, it was not conceived as a revolutionary organ.

When he announced in August of 1902 that this journal was forthcoming, Stieglitz described it as a quarterly devoted to the progress of modern photography.6 Very much in keeping with the elitism and absolutism that Stieglitz was espousing in his own work and through his support of Photo-Secessionist initiates, however, the premier issue of January 1903 carried an editorial statement stipulating that Camera Work was the "logical outcome of the evolution of the photographic art." Stieglitz promised to "reproduce the best examples of all schools, both American and foreign, in a style which will
make the magazine of great value for its pictures alone, even to those who may not be interested in the literary contributions." He pledged to make the reproductions true to their "subtle gradation of tone and value." 7

By contrast, Stieglitz published a number of non-subtle, radically progressive articles in Camera Work. Creative evolutionary concepts entered the journal through the writings of Stieglitz's laboratory partner and associate editor Joseph Keiley, whose "penchant for philosophizing" 8 carried over into an admiration of the French neo-romantic philosopher Henri Bergson. (Bergson's arguments served as catalysts for Keiley's discussions with Stieglitz.)

At the time Keiley was writing for Stieglitz, Bergson's first major text, Essai sur les données immédiates de la conscience (Time and Free Will) of 1889, would have been the major source for the philosopher's ideas. Here Bergson defined his now well known concept of duration, a non-spatialized, non-localized life of the mind. 9 Bergsonian duration was "process thought" which was meant to propel one into the inner dynamism of being. For Bergson passive being did not exist; life was gloriously unpredictable.

For Keiley, writing in 1901, photography represented the force of duration hurtling man and the universe into the modern world. The French philosopher was to write a
very similar, impelling poetic plea for intuited duration in his 1907 book *Creative Evolution*. Keiley most likely anticipated Bergson's statement, deriving his initial ideas from the master's earlier volumes. In his article "The Pursuit of the Pictorial Ideal," which Stieglitz published in the first issue of *Camera Work*, Keiley likened photographic ideals to Bergsonian duration, to a stream of becoming that was exactly that:

> Every great and important movement is like to an onflowing river. Drainage-water as well as limpid stream add to its volume--and all combine to increase its size and force....beneath its surface it has a grand onward impulse to which everything contributes...an impulse that grows in strength and desire--despite rock and obstruction--and sweeps onward toward the sublime open sea of Things-Accomplished of the Perfect, the Ideal.

By contrast and in the same issue of *Camera Work*, Pratt Institute professor of art Otto Walter Beck came forth with his "Lessons from Old Masters," dictating "We must not paint outer nature, but inner nature--and that is to be found only in oneself."

Maurice Maeterlinck's mysterious, yet dynamic writings were greatly prized by Stieglitz and the other Photo-Secessionists, but as they also appeared in *Camera Work* back-to-back with dreamily evocative Symbolist prose, other readers would have found it difficult to interpret them as Photo-Secessionist tracts on progress.

Maeterlinck, an important Belgian Symbolist influ-
enced by both Ralph Waldo Emerson and the Swedish mystic Emanuel Swedenborg, believed that a new type of language was needed to express the transcendental in the context of modern life. Notwithstanding its Symbolist underpinnings, Maeterlinck's dynamic philosophy pictured the mind as a projectile rather than a merely contemplative instrument; in his view the spirit of modernity manifested itself in penetrative thought and action. It comes as no surprise that he considered photography a discipline geared to the study of modern life and action, and to the capture of modern thought.

According to Maeterlinck in his Camera Work essay, "Je Crois," 14 photography was the agent through which artists could liberate themselves from academicism in order to freely pursue the unknowable. As he stated:

But to-day it seems that thought has found a fissure through which to penetrate the mystery of this anonymous [natural] force, invade it, subjugate it, animate it, and compel it to say such things as have not yet been said in all the realm of chiaroscuro, of grace, of beauty and of truth. 15

Looking back in 1911 at the revolution which he had started, a revolution in thought which challenged the practitioners of dark-toned and somber photography to come up with ideas as vital as those that were being explored in vivid color, Stieglitz credited Maeterlinck as the one who had fired the first shot. 16 But in 1903-04, Stieglitz was equally preoccupied with "individual
artistic expression" and his charted course of elitism.\textsuperscript{17}

However, by the summer of 1905, Stieglitz had come
to the conclusion that a group Photo-Secessioneerist philos-
ophy predicated on rationality, feeling, and most impor-
tantly, action, was preferable to one based on individual
salvation. Emboldened by 1907, Stieglitz described the
steps which had led toward this new philosophy to the
British photographer and editor R. Child Bayley:

\ldots\textit{it requires something more than isolated achieve-
ments to accomplish the aims of a radical
movement.\ldots While ready to acknowledge the successes
of the individual, [the leaders of American photogra-
phy] nevertheless insisted upon a certain subordina-
tion of the claims and ambitions of the one, in the
interests of the cause which they believed in\ldots the
universal spirit which is the essential to the life
of every art.}

Undazzled by growing successes, the American pictori-
alists, as a body--of course, there were always some
stragglers--continued to tread the steep and narrow
path which led toward the heights of their ideals,
and to-day, while they have reached above the clouds,
they distinctly realize that the pinnacle is still
far above them (italics mine).\textsuperscript{18}

In this passage published in 	extit{Camera Work} Stieglitz
revealed his indebtedness to Charles Caffin, who believed
that the expression of universal spirit should be "the
highest aim in art."\textsuperscript{19} Even more importantly, Stieglitz
now defined universal spirit in a more dynamic, contempo-
rary, and scientific sense.

Whereas Hegel's and Kant's notions of spirit were
based on unchangeable truths, late nineteenth century
thinkers stipulated that the forms in which we think and
act are the general, essential forms of phenomena.\textsuperscript{20} Stieglitz's mature aesthetic philosophy has been described by many, but not any more cogently than by J. Bradley, writing in fact of Ernst Mach:

Mach's final view of science is that its basis is a rich sensuous experience; it is better to feel than to think, better to describe than to explain. Certainly the feeling and the describing are prior to the thinking and explaining.\ldots\textit{He intensely loves what he sees, and wishes for nothing better. The few nooks to which his happy feet are limited are sufficiently exquisitely framed. He feels and observes, and would refrain from making theories. In the end he becomes an artist; but he is a sensitive being before he is a creative soul (italics mine).}\textsuperscript{21}

Prefiguring Stieglitz, Mach himself wrote, "The play of the imagination around what is experienced or seen, this \textit{poetry} of life, is the first elevation rising above the everyday, above the breathless bearing of the burden of life\ldots\textit{Let us therefore consider this poetic imagination which completes and modifies everything experienced.}\textsuperscript{22}

As shall be discussed in this and the following chapter, by 1907 Alfred Stieglitz considered his new experimental venture--the Photo-Secession's gallery which he had opened in 1905--a stopping off point where contemplation could lead to radical modification of the visitor's preconceptions, concerning art or life. He required one thing of his visitors and associates alike, poetic imagination keyed to the description and interpretation of experience.
Original ideas tested in a collective "fire" (the gallery where Stieglitz and his associates gathered, and *Camera Work*) formed the new "spirit" of Photo- Secession- ist venture and adventure.\textsuperscript{23} It will be recalled that a similar spirit had informed the research and philosophies of Stieglitz’s professors and favored authors, Emil du Bois-Reymond, Hermann von Helmholtz, and Thomas Huxley. For "291," as well as for its predecessor the Little Galleries of the Photo- Secession, experimental scientific philosophies would provide valid analogues.

As might be expected, Stieglitz’s new collective and instrumental approach had a pragmatic rationale as well. (Since he was schooled in experimental philosophy, one might otherwise question why he did not radicalize the Photo- Secession earlier.) In the remainder of this chapter, the sources of Photo- Secessionist radicalism are examined in the context of photography and science, and the philosophy of the Photo- Secessionist laboratory is traced from 1905 to 1910, the period of its most significant research and contributions.

**Polemics and Instruments**

As early as 1902, the newly organized Photo- Secession chafed at the sloppy curatorial tactics of their colleagues in the Linked Ring. American art photographers had actively supported the Links’ annual London
salon, but in 1902 the British delayed in returning their prints, packing them so carelessly that some arrived in damaged condition. Moreover, since the Ring was biased toward Britain while being purportedly internationalist, it was not the banner under which a truly global society of salon photographers could be founded, and Stieglitz considered global scope to be the essential ingredient for the recognition and advancement of photography as a fine art. This ideal stemmed both from his involvement in the international salon movement and from the Hofmann laboratory, an internationally renowned center for chemical discovery and philosophical endeavor.

In 1903 Stieglitz was encouraged when officials of the upcoming St. Louis universal exposition contacted him about exhibiting Photo-Secessionist prints there. However, the lack of sensitivity to Stieglitz's by then well known standards—that the prints be judged by photographers and shown with other works of art—unfortunately led to his withdrawal from this important international technological, scientific, and artistic forum, which would have provided him momentum and credibility.

While in Europe on an extended vacation in the summer of 1904, Stieglitz contacted representatives of German, Austrian, and English amateur photography groups in order to sketch the outlines of an international umbrella organization. He was well aware that Americans,
that is the Photo-Secessionsists, had made substantial aesthetic advances and that they now seriously rivaled the "complacent" Links. Moreover, he had made the Photo-Secessions a "household name" in the photo-political world by engineering two major photographic exhibitions earlier in 1904, one sponsored by the Capitol Camera Club in Washington, D. C. and the other at the Carnegie Institute of Art in Pittsburgh. However, due to the formation that year of another group by an American competitor, Curtis Bell's Salon Club of America, which was currently planning its own "First American Photographic Salon at New York," the Photo-Secessions was in need of strategic alliances.

What Stieglitz envisioned was an international salon of the highest quality, held not under the banner of an ad hoc organization of fashionable American amateurs (which he believed the Salon Club was), but under the smoothly functioning auspices of a German, Austrian, English, and American quadrivium. Under pressure from the Salon Club, he also envisioned a forum wherein ideas would be as important as images. His efforts to mediate among the various groups resulted in failure (the Links being adamant that the new organization should bear their name), and this led Stieglitz to concentrate on the organization of a mechanism through which he alone could engineer a Photo-Secessionsist coup in America.
It was at this point (probably spring 1905) that Eduard Steichen, planning a move to Europe, suggested that Stieglitz assume his lease on three studio-sized rooms at 291 Fifth Avenue for exhibit space. William I. Homer has described the debut of the Little Galleries:

In the [November] inaugural exhibition, hung by Steichen, Stieglitz presented 100 prints by members of the Photo-Secession. He focused exclusively on American work, in contrast to Bell's salon. This first Photo-Secession show was not meant to be an entity in itself, but rather part of a larger scheme: a series of smaller exhibitions in the Little Galleries of the Photo-Secession that would serve as Stieglitz's own international salon.28

The first major reorientation of Stieglitz's aesthetic was due to his realization of a Photo-Secessionist "instrument," a term which expresses his goals better than Photo-Secessionist "gallery."

For Stieglitz, the exhibition space he so carefully prepared, following the interior design criteria of Viennese Secessionist architect Josef Hoffmann and the Dudley Gallery, home of the London Salon, was meant not to be a showplace, but a backdrop for a continual milling and juxtaposition of photographic ideas. In fact, he later described these rooms as "experimental stations."29 meaning in part that each exhibit in the Little Galleries was not a completed statement, but a temporary stopping-off point in the advance of photographic aesthetics.

The Little Galleries of the Photo-Secession codified Stieglitz's "mysterious, emerging ethical purpose
for the state [of photography] and [photographic] society" as being not a mystical consciousness found solely in the individual, but rather an experimental, organic, progressive, and collective one defined by individual research for a common cause. Stieglitz recalled in 1907:

...while individual effort, ability, and talent have made possible the results of the American School, yet the recognition which is being accorded to photography, as a new and additional means of art expression, could not have been accomplished by the work of any one, no matter how inspired.

In that same year Charles Caffin would compare the Photo-Secession to the current of a wide and mighty river, likening it as well to a "diamond of innumerable facets" and an "infinitely suggestive" language.

Caffin wrote in 1907 in an article entitled "Tweedledum and Tweedledee":

...the Photo-Secession, keeping track of the men and women who are doing things, has encouraged them to higher standards. And it has done this, not so much by exhortation, as by the practical expedient of exhibiting the best work under the best conditions for studying it. All are benefitting [sic] by one another's successes, partial successes, and failures, and there is a well-grounded enthusiasm established that is not limited to the photographers.

What were the probable scientific sources for this new concept of a gallery serving as an aesthetic laboratory? First of all, Stieglitz and the other Photo-Secessionists were by definition laboratory technicians: they developed and printed their photographic plates and experimented with a variety of processes and materials.
However, Stieglitz did not have in mind to turn the Little Galleries into a surrogate, scaled down version of the Camera Club (although he maintained a darkroom there), but rather he envisioned it as a bureau of information, a conference facility, and seminar space. Unlikely as it may seem, the American agricultural experiment station movement and the St. Louis Congress of Arts and Sciences held in conjunction with the universal exposition of 1904 provided ready models, although Stieglitz did not himself participate in either.

At the turn of the century, the agricultural experiment station movement was a subject of widespread political and scientific interest. An independent project begun by the state of Connecticut in 1875 in order to stimulate its economic growth, by the late 1880s the movement had spread to a number of states, prompting the federal government to establish an Office of Experiment Stations (OES) under the aegis of the Department of Agriculture, and to subsidize experiment station research in each state.

Scientists appointed to staff these facilities were expected to serve their constituencies by researching and developing new products, fielding a variety of practical questions, and forging strategic alliances with farm leaders and businessmen. Many of them, like Stieglitz, were young graduates of German universities who had
studied in Liebig-styled laboratories. In fact, it was Justus Liebig's innovations in agricultural chemistry which fueled the experiment station movement in both theory and practice,\textsuperscript{34} probably bringing it to Stieglitz's attention.

It will be recalled that Stieglitz's ultimate source for laboratory procedure and practice was in fact Liebig, his chemistry professor A. W. Hofmann's mentor. Both Liebig and Hofmann were involved in research and development in the private sector, Liebig, in agricultural chemistry and Hofmann, in coal tar dyes. Both subscribed to \textit{Wissenschaftsdeologie}, the German scientific ideal of cooperation, perseverance in original research, and elevation of research to a high ethical plane.\textsuperscript{35}

Just as Stieglitz's photochemical laboratories at the Photochrome Engraving Company and Camera Club and the aesthetic laboratory he was to develop at the Little Galleries were Hofmann and Liebig-inspired research centers of applied art (art applied to thought),\textsuperscript{36} agricultural experiment stations were admired as "model farms" or hothouses of applied science.\textsuperscript{37} Their directors, also like Stieglitz, were dedicated to the spirit of \textit{Wissenschaftsdeologie}.

Whereas in the eighteen eighties and nineties the activities of agricultural experiment station scientists
were substantially controlled by the land-grant colleges which administered federal funds (station employees were expected to teach heavy loads; they were not only insufficiently compensated for this added responsibility but they had little or no time left for pure research), in 1908 this situation changed dramatically. That year, leading experiment station directors and the OES successfully lobbied Congress to pass the Adams Act, which doubled each state's budget, provided the money be allocated to "original investigation." As a result of this measure, the agricultural experiment station movement was streamlined for research and publication, and new staff members were hired on the basis of individual contributions to the field of agricultural chemistry. These are exactly the premises under which the Little Galleries and its journal Camera Work operated. (Obviously there was no pay involved in Stieglitz's experiment station, but in order to be exhibited or published, an individual had to have produced original work.)

At the same time the agricultural experiment station movement was lobbying for government-supported scientific research, the 1904 Congress of Arts and Sciences in St. Louis was provoking thoughtful theoretical discussion about the role of scientific ideologies in the modern world. The spirit of this conference was one
of practical idealism, a view that held idealism to be the guiding principle of scientific thought, research, and discovery, as well as the motive behind the application of scientific discovery. Thinkers along these lines believed science and art to be partners in these philosophies and pursuits.

Professor Simon Newcomb, U. S. N. (Retired), President of the congress, previewed it as a demonstration of comprehensive, multi-disciplinary thought processes at work. "We may look for a class of widely educated men," Newcomb wrote, who will "be able to form an intelligent judgment on those questions of science and learning...which most influence the progress of the world." 40

During the week of September 19-25, 1904, Newcomb’s staff assembled a stellar array of European, Far Eastern, and American scientists, cultural historians, aestheticians, and artists to discuss their philosophies and the scope of their work. Popular Science Monthly gave a summary of the proceedings, then later printed selected addresses. The initial summarizer, William Harper Davis of Lehigh University, stressed that the importance of the exposition was in great part due to its "explicit acknowledgment of the sovereignty of mind in human progress to a degree unprecedented in similar undertakings." 41

Among the other speakers was Karl Lamprecht, a
Leipzig historian whose views could have been known by Stieglitz. Lamprecht's major points were summarized by C. R. Mann of the University of Chicago in his Popular Science article "The History of Science--An Interpretation":

(1) That history--real history--consists in the portrayal of a series of culture epochs; (2) that the character of these culture epochs is determined by the higher spiritual or psychic attitude of the more gifted of the people...(3) that the most telling criterion of the psychic attitude of a people at a given epoch is found in the productions of the creative imagination.\(^4\)

Lamprecht's major statement ("History in itself is nothing more than applied psychology")\(^4\) relates to Stieglitz's concept that Camera Work should be an organism whose development corresponded to a singular ideal, the psychology of individual intellects--photographers, art critics, and scientifically oriented writers--who realized the themes of each issue. In so doing, these authors would advance imagination and speculation in the arena of modern art.\(^4\)

As noted, Alfred Stieglitz's brother Julius was invited to the St. Louis congress to address a session on chemistry. By this time, Julius Stieglitz, newly appointed professor of chemistry at the University of Chicago, had established a reputation in pedagogy and research and his original work in catalysis garnered him the honor of giving a paper to his distinguished col-
leagues in Missouri.\textsuperscript{45}

Although Julius's theories in organic chemistry undoubtedly were of interest to Alfred, the theme of his paper, that science should be an organic, humanistic, and creative discipline predicated on relationships, was more significant to his older brother and may even have been the stimulus which led to Alfred's redefinition of the Photo-Secessioneer enterprise. Despite the fact that they were not close as they each approached mid-career,\textsuperscript{46} the two brothers did share the notion that science was an ideal calling, applicable to the practical sphere but above all an adventure worthy of the most pioneering of intellects.\textsuperscript{47}

It is well known that Charles Caffin was Stieglitz's key polemicist when the Photo-Secessioneer refused to organize a photography exhibition for the St. Louis exposition.\textsuperscript{48} That he read an original paper there, entitled "Some Considerations of our System of Instruction in Painting," is not so well known, but it is important because it demonstrates that Photo-Secessioneer related philosophy played a role in the theoretical formulations of the St. Louis congress. (Caffin was in turn influenced by its idealist spirit.)

In his text Caffin argued for a democratic system of art instruction designed to uplift popular taste. Excerpted sections of this St. Louis essay seem to have
been worked into his treatise "Of Verities and Illusions," printed serially in *Camera Work* in 1905 and 1906, as well as into his *How to Study Pictures* of 1904. In these publications Caffin averred that a concentration on individual achievement in education and the grooming of the individual for financial success were red flags marking an abrogation of collective responsibility. Art education could claim no exception to these practices, because the frame of reference of most art educators encompassed solely "the Particular in relation to [them]selves."

Citing the American painter Winslow Homer and the Japanese art scholars Hashimoto Gaho, Lafcadio Hearn, and Kakuzo Okakura (director of the Tokyo Academy of Fine Arts), Caffin affirmed that "it is only when one...cuts himself off from the mad whirl of materialism and communes with the vast life of the Universal and Impersonal, as typified in the ocean, that a picture is made which stirs one's soul." The expression of universal spirit was for Caffin "the highest aim in art."

As expression and development of universal spirit was also the theme of the scientific component of the St. Louis fair, it is probable that Caffin attended scientific sessions and reported on them to Stieglitz before preparing the "Verities and Illusions" text. Hartmann, who is also known to have attended the conference, may
have been a conduit of these ideas to Stieglitz, as well.

That these contacts must have occurred is shown by the close relation of Stieglitz's new ideals to those of the American idealist philosopher and Harvard professor Josiah Royce, who had addressed the session on philosophy and mathematics. According to Royce, the "normative" sciences must seek ideal truth and should be concerned

with the consequences, implications and interrelations of ideas or of ideals, rather than with the order of phenomena or events. The mathematician is concerned with the exact expression and abstract logical development of ideas, the meaning of which in terms of their ultimate relations is sought by the philosopher.52

The Absolute Idealism theory of Royce, who was one of the prominent philosophers of his day, was clearly based on the notion of the creative genius. He believed that "an individual being is a Life of Experience fulfilling Ideas, in an absolutely final form."53 Somewhat like Ernst Mach's, his system stipulated that, "Experience must constitute, in its entirety, one self-determined and consequently absolute and organised whole." (Mach could have accepted Royce's monistic notion of experience, but not the finality of his absolutes.) For Royce, the Absolute, all-knowing world of ideas appeared in the here-and-now only to individuals who exerted themselves toward mental growth, that is, to those who dedicated themselves to experimentation. Thus the creative individual must be an experimentalist as well as
a philosopher. Because he dedicated himself to a universal, absolute ideal, the experimental scientist was also an exemplar of moral strength and a model for progressive society.54

Just as Royce's idealism probably helped to galvanize Stieglitz, suggesting that a moral and relational philosophy akin to, but even more advanced than Absolute Idealism might undergird the Little Galleries, the ideas of three other lecturers at the St. Louis congress may have assisted Stieglitz (via reports by Caffin and Hartmann) to shape the galleries' instrumentalist function. These ideas were expounded by the functional psychologists G. Stanley Hall and James McKeen Cattell, and by the French physicist Henri Poincaré.

In his talk, Hall claimed that thought and life should be considered identical forces. He challenged his colleagues to design a new theory of evolution based on, but not tied to Neo-Lamarckian principles. This theory, Hall claimed, would result from "an objective study, at once comprehensive and thorough, of every concrete phase of experience in all its heterogeneous richness."55 The gist of Cattell's address is not known, but it is possible that he discussed his own work with intelligence tests, which measured human sensory and motor capacities, memory span, and types of imagination.

What must have impressed Caffin and Hartmann (if
indeed they attended these sessions) was that Hall and Cattell were capacity psychologists; they concerned themselves not with what the psyche might be, but with how consciousness actualized. Both had evolved from a Wundtian dualist psychology toward a psychology of motive and action. Stieglitz would apply these avant-garde academic notions to his gallery, an ongoing seminar on modernism.

Poincaré lectured to the congress on pure mathematics and on the applications of mathematics to the research of celestial and other physical phenomena. These specific subjects were undoubtedly of interest to Stieglitz (he may even have asked Caffin or Hartmann to relay a report on Poincaré's discoveries); however, Poincaré's general philosophy of science, and the ideas he discussed in *La valeur de la science* (1905, translated as *The Value of Science* and published in serial form in *Popular Science Monthly* of 1906), were probably more influential since they were consonant with Stieglitz's own ideas (actually Poincaré had most likely influenced Stieglitz's thinking along these lines).

In a fashion similar to Mach's, Poincaré's philosophy stressed the process of hypothesis formation in order to define the functional value of relationships. Poincaré, who equated science and art, claimed that theories teach not the "truth" of things, but supple
relations between them. (Here he differentiated himself from Mach, who believed things could be reduced to elementary sensations.) If these relations were experimentally proven, they would acquire a meaning of truth for all time.

Following a direction of thought initiated by Mach, Poincaré also wrote, "If a phenomenon is susceptible of one mechanical explanation, it is susceptible of an infinitude of others which would account equally well for all the features revealed by experience." Thus, for Poincaré the laws of nature were to a certain degree the result of aesthetic choice, "the result of what we have chosen to listen to from nature." Stanley Goldberg, a historian of science, has summarized Poincaré's relativity, noting that "in the same places that he argued for the supremacy of experience...theories were still the free creations of the human mind and...the experimental evidence guided more than limited the choices that the scientist could make."

The scientist following in Poincaré's footsteps would not be an antiquarian of facts, then, but a discriminating observer and experimenter selecting for study only those facts that might have relevance for the construction of new relationships. "Invention consists in avoiding the constructing of useless combinations and in constructing the useful combinations which are in
infinite minority," Poincaré wrote. "To invent is to
discern, to choose."§1

Poincaré found the shibboleths of nineteenth
century science to be useful and convenient generaliza-
tions. To his way of thinking, however, it was not these
generalizations themselves, but how they worked, that
mattered. "The important thing is not to know what force
is," he claimed, for example, "but how to measure it."§2
Subscribing to this line of reasoning, Caffin felt art
should follow a principle of "constructive
organization,"§3 and Stieglitz was to define the Little
Galleries as

the medium of carefully-selected and restricted
exhibitions...plac[ed] before such members of the
younger generation, as are endowed with artistic
feelings and desires [so that] the ripest past and
present achievements of photography [can be evaluat-
ed]...§4

Under the galleries' "laboratory conditions,"
described by Stieglitz as "soft, diffused light" overall
with "decorative spots" trained for even illumination of
individual prints,§5 the best of what European and
American fine art photographers had to offer was shown,
without explanatory statements or manifestoes. Moreover,
Camera Work would follow the same "open door" policy.
Just as each single or group show at the Little Galleries
manifested one hypothesis (as Stieglitz put it, one
"performance"§6) that was itself provisional and conven-
tional, each article or grouping of articles in Camera Work would represent a viewpoint still subject to modification or refutation.87

Stieglitz conceived his editorial role to be directive, in a Poincaréist sense,88 rather than directorial. That is, he set himself the task of selecting those ideas or hypotheses which most effectively summarized and explained the "facts" of fine art photography as they existed at any one time. He spelled this out in his first Camera Work editorial of April 1906:

...as it is not our intention ourselves to describe or review the Secession efforts, we can perhaps best aid such of our readers who have not been able to judge visually in forming some impression by reprinting three or four articles typifying the diverse points of view.89

In the years 1905 to 1907, Alfred Stieglitz was as yet unsure of how or in what direction photography might advance. Certain of its underlying ideal, he had not established a matrix of relationships which could anchor that ideal. When he stated, "The reprinted articles [in Camera Work] are chosen because they were written by men representing different beliefs as to the possibilities of photography and its proper place in the scheme of things,"90 Stieglitz did not know himself what these actual possibilities were. He suspected, however, that his Little Galleries/Camera Work synthesis was the agent that would eventually unearth and present them. This is
another reason why he established the exhibition space and journal as an experiment station, stipulating that original research be conducted and disseminated there and giving all valid (experimentally confirmed) propositions equal consideration. A closer look at the exhibitions and the journal confirms this as Stieglitz's version of *Wissenschaftideologie*.

**Processes and Process Thinking**

A perusal of the photographs that Alfred Stieglitz reproduced in *Camera Work* around 1907 gives no indication that changes in Photo-Secessionist theory were forecast. The three Americans he consistently favored—Eduard Steichen, Gertrude Käsebier, and Clarence White—presented images indebted to masters of the Italian Renaissance (Steichen, Fig. 55), or to Puvis de Chavannes, James Whistler, and Pre-Raphaelite painting (Käsebier, Fig. 48), or to various interpretations of European and American tonalism and Symbolism. Frank Eugene, another photographer favored by Stieglitz, employed Pre-Raphaelite and "post-Raphaelite" (Rembrandtesque) imagery, bathing his religious and mythical figures in murky, mysterious shadows (Fig. 56).

In addition to featuring his American colleagues at this time, Stieglitz also gave the French art photographer and gum bichromate expert Robert Demachy extensive
coverage both in illustrations and in editorial space. The apparent depth of Demachy's work, achieved through two or three thin gum layers and multiple printing,72 did not hide his somewhat shallow conception of "impressionist symbolism" (Fig. 57).

On numerous occasions Hugo Henneberg, Heinrich Kühn, and Hans Watzek were also featured in Camera Work. Each worked in the German realist tradition, though not as forcibly as Stieglitz himself had in the late 1880s and early 1890s (Figs. 58 and 3).

A closer look at these and other photographers Stieglitz featured reveals that their scientific ideas were more advanced than their images. Seeing that he had illustrated his own articles with photographs that exemplified his researches, it is quite conceivable that Stieglitz chose his associates' photographs to illustrate their experiments, as well.

Demachy, Kühn, and Henneberg, for example, were leading practitioners of gum bichromate printing, an extremely complex photo-manipulative process according to which fine art papers were coated with one or more layers of a gum arabic solution mixed with potassium bichromate and pigment, exposed in contact with a negative, then, during the wet development stage, brushed to the desired degree of finish.

Well aware of these gummists' advances because he
himself had experimented with gum bichromate printing,\(^7\) in 1905 Stieglitz commissioned his friend, the critic Matthies-Masuren, to write about Henneberg, Watzek, and Kühn, whose work he was planning to exhibit the following year.

It was Matthies-Masuren's (and probably Stieglitz's) conviction that these photographers had been experimentalists before they became artists. "They mastered the [gum-bichromate] process in every sense, and developed it by endless experiments, the value of which, at that time, they themselves hardly realized," Matthies-Masuren wrote. Furthermore, he stated that the multiple gum-print process,\(^7\) the invention which Henneberg and Kühn's experiments had made possible, was "the most important printing process at present at the disposal of the artists amongst the photographers." Watzek, a maverick who made his own cameras and developing solutions and sensitized his own papers, also impressed Matthies-Masuren because he experimented with the three-color process in connection with gum printing, endeavoring to produce pictorial effects. He realized, however, that this process involved much trouble, and that the results did not by any means fulfill his expectations. He was not the man to waste his energies on what seemed to him a hopeless task. As soon as he realized that a process with which he was experimenting would not lend itself to his aims, he would abandon it and search for another. And he never failed in his search.\(^7\)

Steichen was also a master experimentalist. As his
work in three-color printing was to prove decisive for Stieglitz and Photo-Secessionist aesthetics after 1907, it merits discussion here.

In 1906 Stieglitz featured Steichen's photographs at the Little Galleries. This retrospective included color prints he had made by combining three separate black-and-white negatives, each exposed through a differently colored filter. Stieglitz described them as "tentative experiments in a direction the author feels is full of promise."76

At this time existing color photographic processes were being intensively reevaluated and simplified in European photochemical laboratories. Because of his work with Hermann Vogel's color sensitizers and orthochromatic and panchromatic plates, Alfred Stieglitz was prepared not only to follow these developments, but to disseminate them to his experimentally-oriented colleagues in the Photo-Secession. By 1907 he had made Camera Work a showpiece for color as well as black-and-white printing, featuring work by Steichen and White. (As noted, he felt three-color photography was the most important photochemical problem of his day.)77

Steichen's early experiments in color photography were probably based on the cumbersome process invented in 1861 by the British photographer/chemist James Clerk Maxwell and known as the three-plate additive method.78
Later, French photochemist Louis Ducos du Hauron and Irish physicist John Joly had simplified Maxwell's discoveries by inventing single plate additive processes. The Autochrome plate, invented by the brothers Auguste and Louis Lumière in 1903, did not do away with the difficulties of du Hauron's and Joly's methods (Joly's, for example, was still cumbersome as it required specially designed equipment and precise alignment procedures), but it was more practical because no special apparatus was required. Unlike Joly's, the Lumières' plates were designed for standard cameras and their developing instructions were not beyond the ken of the average photographer. Moreover, in 1907 "they succeeded in placing the first perfect and efficient plates of this kind on the market." With this announcement, color photography became a viable proposition, and Steichen was one of the first to experiment with it.

When Stieglitz visited Steichen in Paris in June 1907, he intended to meet with him and attend a demonstration of the Autochrome process scheduled by the Lumière Company. Although illness prevented him from viewing the demonstration, Steichen obtained some Autochrome plates immediately afterwards, allowing Stieglitz to experiment with them as well. During the course of the year, Stieglitz's colleagues Eugene, Bayley, Davison,
Coburn, and G. B. Shaw also visited Steichen and took up color processing.

Notwithstanding the fact that Steichen applied his energies totally to the Lumière process and made the more successful plates (Fig. 59), Stieglitz analyzed the problem thoroughly and made some experimental contributions of his own. The two photographers' accounts, "The New Color Photography--A Bit of History" by Stieglitz and "Color Photography" by Steichen (1907 and 1908 respectively), dovetail in their enthusiasm for "brilliant" color, "truthful rendering," "wonderful luminosity," "endless shades of grays," and "dazzling" hues.

These articles, although very different in intent (Steichen's is a photochemical mini-treatise, while Stieglitz's is a collection of reprinted English journal reports meant for the layman as well as the practicing photographer), also agree in another major respect: the availability of color photography now signified the elevation of the art and science of photography to a new plane. It was clear to both Steichen and Stieglitz that the evolution of photography had entered a new dimension; new techniques demanded new ideals. "I for one," wrote Stieglitz, "have learned above all that no problem seems to be beyond the reach of science."

During his European travels in the summer of 1907 Stieglitz visited several printing houses, and engaged
the Munich firm of Bruckmann to print a small edition of Steichen's plates for the April 1908 *Camera Work.*

Then, because of his fundamental desire to advance the state of art photography in America, and his equally fundamental desire to be the one who held the keys to this advancement, Stieglitz invited the press to an exhibition at the Little Galleries soon after he returned to New York. It was evidently his intention to show these invited journalists (undoubtedly science writers and art critics) both unexposed Autochrome plates and Steichen's exposed Autochrome transparencies (the color screen method used by the Lumière and Joly produced a plate that, when developed, became a transparency; it could be viewed in a stereoscope or in a plate holder with mirrors). Obviously, it was also his intention to show them the pictorial applications of color processing, namely, that this important technological development could also produce fine art.

Paraphrasing his speech at the September viewings, which was probably illustrated with lantern slides of Steichen's images, Stieglitz stated:

> Our early verdict was unanimously upheld. Thus, color photography and its wonders were set loose upon America. As I write, no plates are in the American market. The agents expect them daily. The practical uses to which the process can be put are really unlimited; the purely pictorial will eventually be but a side issue. Nevertheless, the effect of these pictorial color photographs when up to the Secession standards will be revolutionary, and not alone in
photographic circles. 88

It is clear that by 1908 the Little Galleries of the Photo-Secession had made a substantial impact as experiment stations: they were information bureaus disseminating current photochemical advances and applications, they were conference rooms reserved for public demonstrations of these advances, and they were seminar rooms wherein scientific and artistic ideas not only coexisted, but were subjected to rigorous technical and philosophical evaluations. The Photo-Secessionist "revolution," although instigated by Stieglitz, was a collective one and Camera Work reinforced that concept.

"It has been our policy--and it will continue to be our policy--to print such articles as we deem timely, interesting or provocative of ideas," Stieglitz stated in his capacity as editor of Camera Work near the end of 1906. 89 By that date he had initiated the most provocative forum for aesthetic discourse in American art journalism, a column entitled "The Photo-Secession Galleries and the Press." In later years Stieglitz was to anchor this section of reprinted articles concerning his exhibits with an editorial statement or sanctioned "review," but in 1905, and particularly 1906, this part of the journal was still a healthy free-for-all where critics appeared to actually be arguing over the merits of photographic work and ideas, just as they probably did
in the Little Galleries. Thus was formed a test tube culture of photographic anarchy.

Radical and anarchic philosophies of life and art flourished in Europe and America in the first decade of the twentieth century. Recent scholars have effectively paralleled the social aspects of Stieglitz circle radicalism—that is, its experimental and collective thrust—with the philosophically similar ideas of his contemporaries, among whom Robert Henri, Hutchins Hapgood, Mabel Dodge, Max Eastman and Floyd Dell were the most important in America.  

The British utopian writer H. G. Wells, whose writings Stieglitz published in *Camera Work*, wrote from a similar perspective, believing that "all movements were more important than their goals." Wells's open-ended conception of social progress was predicated on the power of scientists and technologists to uplift human consciousness from the lower to the higher emotions. According to Wells, the effort required to attain these higher emotions—beauty and power—was more worthy of consideration than those ideals taken as abstract qualities in themselves. If that effort was swallowed up in catastrophe (a bombing or interplanetary war), it could still be salvaged because such catastrophes were "constructive liberation[s] of new growth."  

It should not be surprising to find that another
parallel to Photo-Secessional critical experimentalism

University of Chicago instrumental psychologist

Warner Fite believed, as did Stieglitz and Wells, in the

value of the unresolved and in the spirit of healthy

irresolution. Moreover, Fite believed that the resolu-

tion of an aesthetic problem was akin to the resolution

of a scientific problem. He explained in Psychology

Review in 1904 that:

Every new discovery, like that of oil or natural gas, works a change in the old civilization, reorganizing
its industries and modifying the daily manner of
life. The same is true of mental development....And
every newly acquired impression means ultimately a
reorganization of our categories of truth and reality, and of the fundamental conceptions of science, to
provide for its possible inclusion. The relation
between art on the one hand, and science and industry
on the other, is a feature of this process.84

Seen in the light of these philosophies, Stieglitz’s

editorial offices functioned as both clearinghouses of
radical ideas and psychotherapeutic "offices" geared to
self-cures and aesthetic reeducation.

Just as the Photo-Secessional concept revolved
around a utopian, progressive, and psychotherapeutic
organization, it also involved a utopian critical agenda.
This agenda, however, was "disorganized," rather than
organic in the American progressive sense.

As has been stated, Stieglitz designed the column,"The Photo-Secession and the Press," to pit one opinion
against another without mediation, conciliation or any efforts toward resolution. In the April and July 1907 issues of Camera Work, he reprinted a series of Amateur Photographer articles on the aesthetics of photo-manipulation written by Demachy, G. B. Shaw, Frederick H. Evans, and F. M. Sutcliffe. The point of reprinting these essays was not to imply that non-manipulation was better than manipulation (although the work Stieglitz himself produced later that year proved this to be his personal belief), but to affirm that photographic controversy was intellectually healthy. "Our policy...consists in printing any point of view or any idea, whether we approve of it or not, provided such point of view or such idea appears to have behind it some solid gray matter of brain," he wrote.

Taking obvious delight in promoting intellectual controversy was a trait Stieglitz shared with other American progressives, such as the experiment station scientists. According to Eric May, this aspect of early twentieth century American life was a key part of the nation's wider move towards intellectual liberation. As such, Stieglitz's Photo-Secessionist ventures form part of the organic model of society that emerged in America c. 1900-10.

This model brought a new emphasis on systems, mechanisms, and organizations (all products of the
machine age), and initiated a concept of evolution as "more spontaneous than 'cause and effect' and as producing a temporary instability, if leading ultimately to equilibrium." Technologically utopian ideas emerged in this optimistic and progressive atmosphere, and many were remarkably similar to those espoused by Stieglitz and his colleagues. The most universally popular notions were that work could unite people with their society, that work was a "calling," a psychological guarantor of salvation, and that the highest form of leisure was contemplation.

Within the period 1905-10, the Photo-Secession evolved from one of many American artistic photographic societies to a globally-oriented committee sponsoring an ongoing international salon of fine art photography. Its avowed goal became that of advancing the medium of photography and the philosophies and careers of those for whom experimental photography (and experimental photography criticism) was a way of life. As one historian has commented, "Stieglitz's magazine Camera Work and his Little Galleries of the Photo-Secession believed in a concept of collective work in the arts and provided means to deal effectively with problems that transcended purely artistic ones." Both acted, in effect, as "'culture centers.'"

The real "center" of Photo-Secessionist culture,
however, was Alfred Stieglitz. The Little Galleries having been defined as aesthetic laboratories, Stieglitz was the man whom both the gallery-going public and the Secessionist circle expected to take the helm as laboratory director. And, having had ten years of experience in scientific laboratories he had designed and administered (the Photochrome Engraving Company and the Camera Club), Stieglitz was now ready to undertake this new and distinctly novel assignment. His actions on behalf of photochemical developments and controversial criticism have been noted. How he conceived his role, and how his photography evolved in this experimental context are the subjects of the next chapter.
NOTES

1. Naef, p. 110 and Homer, Photo-Secession, p. 113.


5. By the close of Volume 5, that is, mid-1902, Camera Notes had become a vital force in the pictorial world. As Homer has summarized, "the question was no longer whether photography was an art; now the issue was what sort of an art it should be" (Homer, Photo-Secession, p. 37). Yet, at the same time the quarterly advanced into its maturity, it ran seriously afoul of the Camera Club's more conservative wing. In October 1900, the month of Camera Notes' most significant issue, Stieglitz requested that the club meet to discuss his editorial policies and to give him a forum to answer the rumblings of opposition. Discussion was heated, but Stieglitz did receive a resolution freeing him to continue his efforts. In February 1902, however, the election of an opposition slate of officers forced his resignation. The prospects of forming his own club of pictorial photographers, almost immediately to be realized at his National Arts Club exhibition, gave Stieglitz the additional opportunity of initiating a new photography journal. This was Camera Work.


Each issue of Camera Work was designed to be a
self-sufficient work of art. Both the editorial and advertising pages were laid out asymmetrically with massed white space. This was an avant-garde pictorialist practice in and of itself, comparable at that date only to the "concrete" art and literature of French poet Stéphane Mallarmé, which likewise relied upon an aesthetic placement of type upon the white page.

Stieglitz utilized numerous engraving and print processes, and he stipulated that nearly all of the reproductions for every issue of Camera Work be photogravures, the finest reproductive process available.

8. Lowe, pp. 120, 121.

9. According to Bergson:

Pure duration, of which we can become intuitively or immediately aware in consciousness of our own inner mental life, when, that is to say, we enter into it in depth, is a series of qualitative changes melting into and permeating one another, so that each "element" represents the whole, like a musical phrase, and is an isolated unit not in reality but only through intellectual abstraction. Pure duration is a continuity of movement, with qualitative but not quantitative differentiations (Copleston, 9:208).

10. Bergson wrote in that text:

All the living hold together, and all yield to the same tremendous push. The animal takes its stand on the plant, man bestrides animality, and the whole of humanity, in space and in time, is one immense army galloping beside and before and behind each of us in an overwhelming charge able to beat down every resistance and clear the most formidable obstacles, perhaps even death (Henri Bergson, Creative Evolution, trans. Arthur Mitchell [New York: Henry Holt and Company, 1913], p. 271).

According to Keiley:

With the same ease that it has penetrated distance has [photography] kept pace, neck and neck, as it were, with matchless speed, with the bolting horse, the dashing train, the circling condor, the crashing projectile, the flashing lightning: with the sky-wandering comet that whirls with awful momentum through the vastness of the immeasurable heavens. All these to the camera are practically as things
that are still when it comes to the task of snaring their images upon the sensitive plate, for in speed it can rival even death (Keiley, "Photography and Progress," *AAP/PTA* for 1901 [1901]:19).


12. Otto Walter Beck, "Lessons from Old Masters--No. 1," *CW* no. 1 (January 1903):52. From this statement alone, one might argue that Beck's views were more advanced, premised as they appeared to be on inner form. His article, as its title suggests, is far too tied to existing academic principles to seek a new, untrammeled aesthetic philosophy.

13. Maeterlinck's essay "Je Crois" first appeared in *Camera Work's* April 1903 issue, along with Hartmann's highly stylized, Symbolist-premised essay "A Visit to Steichen's Studio."

14. Eduard Steichen was responsible for obtaining the photographic essay, "Je Crois," which Maeterlinck wrote for *Camera Work*. In 1900-01, Steichen was in London, Paris, and Munich, exhibiting the photographs he had brought with him, studying art at the museums, and photographing the artists and writers who, he felt, exemplified the great ideas of the time. He was also preparing to exhibit this new work, which he titled "painting with light," and sought out Maeterlinck, for whom light was synonymous with the lucidity of intuitive thought, to sit for him. Maeterlinck visited Steichen's 1902 exhibition in Paris and, Steichen recalled, "expressed ideas about photography that were different and more considered than any I had heard before" (Steichen, *A Life in Photography* [Garden City, New York: Doubleday & Company, Inc., 1963], n.p.). Steichen asked him to put his thoughts in writing for *Camera Work*, then in its planning stages. Maeterlinck's brief essay was reproduced as written, reprinted in English translation and placed into the July 1903 issue as an insert (Stieglitz had intended that it accompany the Steichen number, dated April 1903, but it arrived too late).

15. Maurice Maeterlinck, "Je Crois," *CW* no. 3 (July 1903):42.


17. Stieglitz, "The Photo-Secession and the St.


23. According to Lowe, Camera Work was Stieglitz’s organ of collective enrichment, not collective effort. In Stieglitz’s mind, the important thing was to publish individual research within the open, creative field that was photography. The result was a spirit of collective enrichment (Lowe, 5 July 1889).

24. Actually, Stieglitz, Steichen, and Keiley had been involved in such a campaign since 1901.

25. Notwithstanding the argumentative dispositions of those charged with assembling fine art for the exposition, including Colonel J. A. Ockerson, chief of the Department of Liberal Arts and undoubtedly Stieglitz himself, a high level of discourse informed the Congress of Arts and Sciences, held in conjunction with the exposition. This discourse entered the Photo-Secessionist circle through participants Julius Stieglitz, Caffin, and Hartmann, as described below.


27. Bell stated that his Salon Club was dedicated "to secure fair play for all that is good in Photographic Art regardless of method or manner of treatment—-to protest against a narrow point of view—-to molest no one but rather to hold out a hand to everyone who is trying to follow an idea" (Curtis Bell to George Seeley, 10 November 1904, quoted in Homer, Photo-Secession, p. 116). Just as Stieglitz appropriated Day’s polemics in order to strengthen the platform of the emergent Photo-Secession, he appropriated Bell’s. There are no specific statements
to confirm this, but the subsequent history of the Photo-
Secessionist enterprise demonstrates it clearly, as
discussed below.


29. Stieglitz, "Photo-Secession Notes," CW no. 30
(April 1910):47. "Experiment stations" would have been a
more accurate descriptive "title" for the galleries of the
Photo-Secession. For a discussion of this subtle
difference, see Chapter Ten, note 1.


32. These metaphors occur in the context of the
following passage by Caffin in his Camera Work article
"Symbolism and Allegory":

The barriers are down, that once separated the
various groups of terminology. The terms of music
are borrowed by the pictorial and plastic arts, and
vice versa; while the growth of science has added new
words or invested old words with new meaning. Thus
to the writer, as well as to the reader, a word is no
longer a plane mirror but a diamond of innumerable
facets; speech, no longer merely obvious, but infin-
itely suggestive. Thought, in its turn, is shaping
itself to a new realization of the spiritual (Caffin,
"Symbolism and Allegory," CW no. 18 [April 1907]:22).


34. Liebig's influence on the experiment station
movement was substantial. In his seminal text Organic
Chemistry in its Applications to Agriculture and Physiol-
ogy (London, 1840), Liebig refuted a widely held assump-
tion that humus, the product of plant matter decay, was
the main nutrient for plant growth, stating instead that
carbon was assimilated into plants from the atmosphere.
"The most important plant function, Liebig asserted, was
to separate the carbon and oxygen of carbonic acid,
releasing the oxygen and assimilating the carbon into
compounds such as sugar, starch and gum" (Dictionary of
Scientific Biography, s. v. "Liebig, Justus von," by F. L.
Holmes, p. 345).

151.


38. Ibid., p. 166.

39. According to Rosenberg, the consequences of the Adams Act and endowment were long-reaching. Adams funds supported genetics, biochemistry, and bacteriology, and fostered careers in abstract research. Even more importantly, the Adams Act gave a vital stimulus to American science in general by supporting only those projects premised on original investigation. It was followed in 1914 by the Smith-Lever Act, which supported agricultural extension work (Ibid., pp. 179, 182).


43. Karl Lamprecht, "What is History?" p. 29, cited in Mann, p. 315.


45. Julius Stieglitz’s paper was entitled "The Relations of Organic Chemistry to Other Sciences."

46. Lowe, pp. 53, 76. The reasons for the estrangement appear to have been career-motivated, as Lowe explained:

Among [Alfred’s] brothers and sisters, only Julius questioned his refusal to seek payment for his work, especially his resistance to selling his photographic talents....With gross misunderstanding of Alfred’s entire canon, he proposed helping him find work with one of the great movie firms, and added what he hoped
would be the most persuasive argument: "The man who can face the world financially is free to carve his own way otherwise, be it what it may." Not surprisingly, his exhortation so infuriated Alfred that it was nearly a year before they were reconciled, and then only after Julius had capitulated (p. 53).

One must not discount the possibility that Alfred Stieglitz embodied this account, because Julius appears to have been just as idealistic in his career as Alfred was in his. Nonetheless, some point of contention probably did estrange the brothers in the years after 1910.

47. Later Julius Stieglitz was to write an impassioned plea for scientific research that must have impressed Alfred:

To the...solution [of the great problems of human happiness] chemistry must contribute its services...along all of its lines of attack: searching analytical methods, comparable with the work of pioneers, scouts, observers of every kind in warfare; its creative powers to improve known curative agencies and recruit new remedies...and finally its physico-chemical methods of studying and controlling functions, which are comparable with the skill of engineers...(Julius Stieglitz, "The Significance of Chemistry and of Its Methods of Attack on Fundamental Problems," in Chemistry in Medicine, ed. Julius Stieglitz [New York: The Chemical Foundation, Inc., 1928], p. 22).

Lowe has recounted how Alfred also utilized military metaphors to reinforce his similar concept of creative genius. "[Stieglitz] was prone," she wrote, "to describing almost all his major efforts as 'carrying on the war,' 'holding the fort,' and outmaneuvering his 'enemies'" (Lowe, p. 47).


49. Caffin worked essays on certain topics, such as Japanese art, into various concurrent publications.


51. Caffin's intimate acquaintance with the practical idealism of the congress is revealed in the
following quote:

Now, the [human race] has been shaped and nourished for centuries on Idealism, so we are confronted with a proposition that to our educators must seem paradoxical: namely, that idealism is a soil which may produce the finest growth of practicalness; that out of the habitual belief in the supremacy of Spirit may be derived a most efficient mastery of the material; out of the idea of an impersonal Ego an extraordinarily noble type of Individualism (Caffin, "Of Verities and Illusions," p. 27).

52. Davis, p. 13.


55. Davis, p. 15.

56. For Wilhelm Wundt, the founder of experimental psychology (and like Stieglitz, a product of German university laboratory science—he was a student of Robert Bunsen's), norms or elements of behavior were to be found not in the psychology of the individual, but in the psychology of groups. While asserting that experience was actual, active and developmental, he nonetheless denied the notion of a dynamic experiential continuum, defining the physical and the psychical as two incompatible worlds. To Wundt's American disciples, however, psychology was predicated on the unity of consciousness and involved the development of human capacities rather than the study of human elements.

57. Writing about Stieglitz's editorial duties at American Amateur Photographer, Lowe stated, "He began to view his role as that of a teacher; it was a role he would play for the rest of his life" (Lowe, p. 107).

58. Mach wrote that contradictory principles were not only admissible but could also be "the strongest moving force of research" (Feyerabend, p. 9).


In his book Science et Méthode (1908) and in an interview with the American scientist and journalist Edwin E. Slosson, Poincaré described how certain of his own discoveries were intuitively arrived at. But, he believed, although these theories could result from intuitive processes, the relationships they describe must be considered suspect until proven valid through experimental confirmation (Edwin E. Slosson, Major Prophets of Today [Boston: Little, Brown, and Company, 1914], pp. 122-23).


64. Stieglitz, "Some of the Reasons," p. 27. Evidently knowing that this statement would be included in Bayley’s book (or essay) "The Complete Photographer," Stieglitz did not mention that by this time he was speculating that certain adherents of pictorial photography might be over-ripe, not merely ripe.

Another potential conduit for these ideas was the scientist, artist and art critic Roland Rood (1863-1921), son of Ogden Nicholas Rood who was Professor of Physics at Columbia College, New York City, and the author of Modern Chromatics (Students' Text-Book of Color) (1879), an enormously influential textbook for students of science and the arts. This book by the elder Rood, who was also an experimental chemist of the Liebig school, had been based on nearly twenty years of work with various color-mixing apparatuses, added to the optical theories of the mid-nineteenth century English physicist James Clerk Maxwell (the inventor of additive color photography). He was also influenced by the empiristic theories of Hermann von Helmholtz.

Early in life Roland Rood demonstrated an interest in art and writing but, following his father, chose to study physics at Columbia College. After two years of apprenticeship with his father, however, he decided that
art was his real passion and that he must relocate his education to France. There he studied with Puvis de Chavannes. Stimulated both theoretically (through Puvis's teaching) and perceptually (through his study of the Barbizon paysage intime and Impressionism), around 1906 Rood turned to German psychologist Theodor Lipps's theory of Einfühlung (translated into English as "empathy" by an American colleague Edward Titchener). This theory, based on the transformation and re-integration of empirical data within a conception or sensation that summarized, simplified and personalized them, prepared Rood for the similar ideas espoused by Poincaré and probably known to his father.

When he came into Stieglitz's orbit and began writing on photography for Camera Work and American Amateur Photographer (exactly how this occurred is not known), Roland Rood seems to have been intent upon continuing in criticism his self-education in perceptual and tactile sensibility, a line of thought Stieglitz undoubtedly encouraged. In an early essay "On the Influence of Photography on our Conceptions of Nature" (Camera Work no. 8 [October 1904]), Rood averred that not only had photography come to stay, but it had advanced a new aesthetic standard geared to evolution and motion. "The physicists," he stated, thinking possibly of Mach and Poincaré, "have demonstrated that there is no true system of values, that truth of values in art is a mathematical impossibility, and that all systems of values resolve themselves into the personality and idiosyncrasies of the artist" (pp. 22, 23).

It is important to note that however forward thinking Rood's essays may have appeared to readers of Camera Work, they did not bring a new perspective to Stieglitz; rather, they reinforced and clarified ideas he, through his familiarity with avant-garde scientists, had already formulated. Moreover, Rood showed himself to be notoriously inconsistent, self-contradictory and muddled in his thinking. Thus his Camera Work articles, although interesting and science-oriented, do not form a part of this Stieglitz-oriented study.


66. Ibid., p. 46.

67. Stieglitz's view of healthy critical controversy is clearly evident in the issues of Camera Work where Hartmann and another radical writer, Benjamin de
68. There exists no direct evidence of Stieglitz’s knowledge of Poincaré’s writings (Caffin’s probable knowledge of them is, however, presumed).


70. Ibid.

71. On certain occasions White, whose knowledge of modern art came from studying magazine illustrations, even quoted the styles of Edgar Degas and Claude Monet without making any substantial revisions or additions.

72. “Modern gum printing in France was well represented by Demachy and Puyo, who call gum printing with a single gum-chromate layer ‘French gum printing’ and the method with two or three thin gum layers and multiple printing the ‘Vienna Method’” (Eder, p. 561). A concise description of the gum bichromate process is found in Homer, Photo-Secession, p. 168.

73. In 1899 Stieglitz wrote about gum bichromate printing, “A new field of possibilities has been opened up [to the artistic photographer], and the prospects for the future of pictorial photography have become much brighter with its advent” (“The Progress of Pictorial Photography in the United States,” AAP/PTA for 1899 [1899]: 158–59, cited in Naef, p. 68). Stieglitz exhibited five gum prints in his own retrospective, also held that year.

74. “Multiple gum prints, usually in more than one color, are made by additional printings of the same negative, in register, on the original sheet” (Homer, Photo-Secession, p. 168).


77. In the first issue of Camera Work Stieglitz printed an article by Bayley detailing the state of color processing and printing. Bayley was cautiously optimis-
tic about the future of color photography, but felt that no one existing process was sufficiently developed to render a "truthful reproduction" of nature (Bayley, "The Pictorial Aspect of Photography in Colors," CW no. 1 [April 1903]: 42).

In 1904 A. K. Boursault, an associate member of Stieglitz's group, was chosen to act as assistant editor of scientific contributions for Camera Work. Boursault edited only one issue as assistant scientific editor, however, Number Seven dated July 1904, which contained two purely scientific articles, one "About Focal Length" and the other on photographic filters for color screens. Reports of certain experiments made by the respective authors, the articles seem to have been commissioned to highlight developments in picture taking as well as photomechanical reproduction. Of particular importance was the essay on color screens because it was written by Frederic E. Ives, a prominent American photographer who had invented a three-color process ("composite heliography") and the "phototochromoscope," the first apparatus to effectively project and synchronize color plates. Ives's discussion in Camera Work centered on the process, developed primarily by photochemists in France, by which glass plates were coated both with emulsion and tiny colored particles or lines; when developed, the plate showed a color separation and the colors of the original scene could be reproduced by aligning, then viewing it through another color screen (Ives, "A Photographic Ray Filter Which is Not a Color-Screen," CW no. 7 [July 1904]: 44).

In 1905 Camera Work published its first color halftone, The Ring Toss by White. It was followed in 1906 by Steichen's The Flatiron--Evening. By publishing current research in this very topical field, Stieglitz showed that science was as important to amateur photography as literature and art.

78. In 1861, in order to illustrate Thomas Young's theory that the primaries of light were red, green, and blue, Maxwell delivered a lecture before the Royal Institution of London. In his presentation, entitled "On the Theory of the Three Primary Colors," he discussed the following experiment:

Three photographs of a coloured ribbon taken through three coloured solutions, respectively, were introduced into the lantern, giving images representing the red, the green, and the blue parts separately, as they would be seen by Young's three sets of nerves,
respectively. When these were superimposed, a coloured image was seen, which, if the red and green images had been as fully photographed as the blue, would have been a truly coloured image of the ribbon. By finding photographic materials more sensitive to the less refrangible rays, the representation of the colours of objects might be greatly improved (James Maxwell, *British Journal of Photography*, 1861, cited in Eder, p. 641).

79. The late nineteenth century French photochemist Louis Ducos du Hauron, one of the pioneers of color processing and printing, sensitized his silver bromide collodion plates for green with Vogel's coralline, and obtained reasonably successful results. Du Hauron is most famous for his work in subtractive color photography, that is, the creation of colors by combining dyed images instead of colored light. However, he also did pioneering work with additive photography and polychrome screens, the bases of the Autochrome:

Du Hauron announced in 1897 a process for the production of three-color negatives by means of three plates or films placed one behind the other and in one single exposure. On top he placed (glass side toward the lens) a perfectly transparent ordinary gelatine blue sensitive silver bromide plate...then a thin film sensitive to green, then a red filter, and finally an emulsion sensitized for red; thus he obtained with one exposure the separations for the yellow, red, and blue plates (Eder, p. 647).

Although this simplification of Maxwell's additive method (only one plate was required instead of three) was recognized as worthy of further research and development, du Hauron himself did not pursue it. The direct precursor to the Autochrome was the color screen invented by Irish physicist John Joly. In 1893 Joly invented a screen composed of red, green, and blue lines each .12 mm. wide set next to one another. He stipulated that a color sensitized plate be affixed to the screen, then exposed. A transparency made from the plate was affixed to another Joly screen; if the screen and transparency registered exactly, a faithfully colored image would result.

80. See the discussion in the preceding note.

81. The color screen method perfected by photochemists such as the Lumière's was a key development toward cinematography; one "omnicolor plate," for exam-
ple, "was developed into the English Spicer-Dufay color cinema film and successfully projected in the summer of 1931 at London" (Eder, pp. 661, 662).

82. Because Stieglitz, Steichen, and their British colleague R. Child Bayley all investigated it, another color process invented in 1891 by Gabriel Lippmann, professor of physics at the Sorbonne, forms an interesting aside of this technical discussion. The Lippmann process was additive, like Joly's and the Lumière's, but as it relied upon a principle whose applicability was highly impractical, it remained a scientific curiosity. The theory of the complex Lippmann process is that photography can make use of light interference or the interaction of light waves (the same phenomenon produces color in soap bubbles or oil slicks). No coloring matter is dyed onto the Lippmann plate; the interference of the emulsion with a reflective mercury backing records the colors in black and white. When the developed plate is held at a precise angle to the light, a color image appears.

Despite the non-feasibility of the Lippmann process, the leading English and American pictorialists were fascinated with it because the Lippmann "Heliochrome" plate produced images of unsurpassed beauty, brilliance, and mystery. What captivated Steichen, for example, was the fact that a seemingly translucent, ordinary plate held within it all the colors of the spectrum. In 1908 he wrote:

The Lippman process is undeniably real color photography, for the question of actual coloring matter does not in any form enter into the making of the image, and we have a plate which is actually colorless and resembling an ordinary plate. Yet when seen at a certain angle by reflected light, a beautiful, iridescent image becomes apparent, which when shown by reflection in a projecting lantern, has all the startling realism that the image in a mirror conveys (Steichen, "Color Photography," CW 22 [April 1908]:14).

83. "[Steichen's] experiments were hastily followed up by others, and in less than a week Steichen had a series of pictures which outdid anything that Lumière had to show" (Stieglitz, "The New Color Photography--A Bit of History," CW no. 20 [October 1907]:21-22).


86. This early effort in printing was not satisfactory, as both Stieglitz and Steichen apologized for the quality of the Autochrome reproductions (Steichen, "Color Photography," p. 24 and Stieglitz, "Our Illustrations," CW no. 22 [April 1908]:24).

At this time Stieglitz also interviewed the Munich printer and photochemist Eugen Albert, who impressed him not only with his work in color halftones and photolithographs, but also because "his [was] a scientific mind combined with a goodly portion of natural artistic feeling" (Stieglitz, "A Bit of History," p. 23; on Albert's work in color printing, see Eder, p. 654).

87. Coburn "jumped the gun" by giving an interview to the press on color photography before Stieglitz returned to New York (Mike Weaver, p. 8).


89. Stieglitz, "Our Articles," CW no. 17 (January 1907):41.


91. May, p. 238.

92. Ibid., p. 239.

93. In his 1904 article, "Art, Industry and Science," Fite stated:

Now when we have arrived at a sense of form, the next condition is that the form remain elusive. Appreciation of beauty begins with a sense of form, but it ends, that is, ceases to be esthetic appreciation, with a complete comprehension of the form...a belief in the solubility of the problem marks the beginning of esthetic appreciation; its continuance as such demands thereafter that the solution remain incomple (Warner Fite, "Art, Industry and Science. A Suggestion toward a Psychological Definition of Art," Psychology Review 8 [1904]:138).

94. Ibid. But art left science behind, Fite believed, because the ability to evoke felt relations and intimate mystery was purely an aesthetic one. "So far as the element in question is new, unexplored and uncontrolled, it is an object of esthetic appreciation and the
demand for it is an esthetic want; in proportion as it comes under our control it becomes an organic need, an object of industrial activity and a fact of science" (p. 143).

95. The first such column appeared under the title "The 'First American Salon at New York,'" and included three reviews of Curtis Bell's salon. Stieglitz did preface the reprinted reviews with satirical jabs at Bell's jury and the "mediocre four hundred prints" (CW no. 9 [January 1905]:50). In the next column, "The Photo-Scession Galleries and the Press," which appeared in the April 1906 Camera Work, Stieglitz reprinted four reviews without comment. Not until 1906, however, did he write a provocative introduction to the reprints which gave no particular point of view, but invited the reader to savor the free-for-all ("Henri Matisse at the Little Galleries," CW no. 23 [July 1908]:10).


97. May summarized the beliefs of The Liberation, a neo-romantic elevation of life above thought, as based on the fact "that ideas should be judged not by their conformity to any preconceived truth but by the quality of life they contained," particularly since "science had suddenly become wide-open at the ends." The Liberation was effected by certain cultural and scientific liberators, among whom May included the philosopher Henri Bergson, psychologists G. Stanley Hall and Jean Martin Charcot, and H. G. Wells (May, pp. 219, 248).

98. Segal, p. 104.


100. The International Exhibition of Pictorial Photography in Buffalo, held in the fall of 1910, was the culminating manifestation of this movement. This is discussed in Chapter Ten.

CHAPTER NINE

ALFRED STIEGLITZ'S PHOTOGRAPHIC MISSION, DISCOVERIES, AND REAPPRAISALS, c. 1905-10

The preceding chapter established the Photo-Secess-ion as a cooperative, collective, and experimental laboratory, and situated its ideals within the context of early twentieth century progressivism. It was shown that Alfred Stieglitz's philosophy of science dovetailed with similar philosophies espoused by key scientists of his day, and that he was influenced by two major turn-of-the-century progressive expressions, the experiment station movement and the St. Louis Congress of Arts and Sciences. His exposure to these ideas led him to reconsider scientific notions and ideals he had espoused in his student and early professional years, as well as to deepen these through a study of his contemporaries' applications of them.

Having considered these philosophical elements in conjunction with the serious threat posed to the Photo-Scession by the Salon Club (apparently more dedicated to the promotion of new ideas than Stieglitz's club was at this time), Stieglitz changed the Photo-Scessionist mission from individual salvation to group dialectic, dynamics, and action. The future of photography as a progressive science became of vital interest to him,
leading him to follow and promote Eduard Steichen's color experiments. It comes as no surprise that in the process of reorienting the philosophy of the Photo-Secession he changed his theories about art photography as well. In this chapter, Stieglitz himself returns to the foreground as experiment station director, Machist photographer and avant-garde photography theorist.

Alfred Stieglitz, Gallery Director

In 1906 Stieglitz initiated the roles he was to continue in varying degrees throughout the rest of his professional gallery career: lecturer, discussant, questioner, and agent provocateur (Fig. 60). His colleagues in the Photo-Secession had been engaging in discussions on photographic philosophy with Stieglitz at the lunch gatherings he sponsored (and probably funded) at Mouquin’s. The general art viewing public, however, had had no such opportunity and was by and large bereft of photographic sophistication. In order to educate his viewers and thereby broaden the base of support for the Photo-Secession--no longer a private club but an open, public laboratory--Stieglitz now took it upon himself to involve outsiders in his experimental venture. He discussed how this worked to his friend and colleague Heinrich Kühn in November 1906:

Last year’s exhibition together with the effect of Camera Work year after year, have greatly influenced
an enormous number of people—and so I stay in the exhibition rooms every day from ten in the morning until six in the evening just to receive the visitors. That is a horrid torment and task and yet it must be, since so many really interesting people among the visitors require explanations—and then you should hear how A. S. often holds forth not only on photography but on art and social conditions in America. It is surely not in vain—that I know and feel....

Although no written records exist of the conversations Stieglitz initiated in these early years, based upon his stated premises, reports that were written by others, and the articles he published, enough can be pieced together to sense the gist and import of these "demonstrations."

Alfred Stieglitz presented himself as being against academic conventions of salon photography; in a like manner, he was against complacency in life as well as in art. Much later, continually plagued by the inability of his evidently well-heeled audience to place aesthetic ideas above monetary value, Stieglitz wrote to Bayley:

It is all very amusing, still very sad. How can there be cooperation where there is so little goodwill, so much distrust, and so much talk about idealism, and spirituality. The interpretation I suppose of American idealism can be stated in I--deal--ism. That about sizes it up. What will the country come to? It is a wonderful country, but it needs an earthquake or two....

For Stieglitz, art was the means through which sufficiently sensitized individuals could rediscover themselves as aesthetically motivated beings. It was his belief that those individuals should be given the chance,
via their exposure to art in a low pressure, non-commercial context, to bare their souls, thus stripping away the conventionality and artificiality of commercial and other falsely egocentric values.⁴

Stieglitz later recalled a 1906 encounter with six tailors, who asked him to be their arbiter in a wage dispute. These tailors wanted higher pay and shorter hours, but Stieglitz, recalling his own experience in business, directed them to address their aesthetic demands. "Does your boss give you the time to cut as well as you know how, or are you too driven and not able to cut the best that you know how?" he asked one of them. Stieglitz refused their immediate request, but said, in parting, "If ever you should come to me and say, 'We refuse to work for anybody who will not let us give our best,'--I'll be your leader. My life will belong to you."⁵

As the preceding episode demonstrates, Alfred Stieglitz did not stand by while his visitors mused, but engaged them in a Socratic dialogue by means of pointed questions and leads for discussion. The tone of his improvised talks was "rather casual" in the words of Edmund Wilson, but, the "ribbon of talk was as strong as a cable."⁶ Like Caffin and others in his critical stable, Stieglitz also spoke in parables.

In Camera Work, July 1905, the humorist J. B.
Kerfoot, an associate editor for the journal and Stieglitz's close friend, wrote a parable about Stieglitz's gallery persona in the form of a fable called "The Tragedy of the Psycho-Kodak." Kerfoot's protagonist, a certain unnamed scientist, philosopher, and artist, was diagnosed by a physician as suffering from "cerebral overproduction of ego-waves," a condition brought about by his self-centeredness. Angry and disillusioned, the sufferer turned to photography and, with a little bit of luck, happened upon an invention which he called the "Psycho-Kodak." This device could (through the activation of its operative mechanism, "Astral Actinosity") record the thoughts of "humanity, trapped in its secret chambers; surprised without its mask." Needless to say, the invention was totally misunderstood, and the photographer, bereft of the strength of character that the real Stieglitz possessed, sank into anonymity.7

What Stieglitz seems to have been after in his own gallery parables and discussions was a continuing process of psychological analysis similar in its broad strokes to that taught in the functional psychology courses at Columbia University. The Columbia school stressed free association, the construction of novel relationships, the study of mental operations rather than a metaphysical "ideal" of consciousness, and the necessity of overturn-
ing outworn conventions.

It is not known whether Stieglitz was directly influenced by the Columbia functionalists James McKeen Cattell, Edward Lee Thorndike, and John Dewey, but it can be presumed that he knew of their theories at least indirectly, through Caffin, Agnes Ernst Meyer, or through his possible familiarity with the burgeoning American psychology laboratory movement.8

Like these Columbia scholars, Stieglitz conceived of his role--gallery director--as a capacity-oriented, psychological one. Because he embraced such a function, he desired freedom of expression for all sectors of the public who visited his gallery, including, of course, the photographers he exhibited and the critics whose essays he either published or reprinted. As noted by Stieglitz's friend, the American journalist Hutchins Hapgood, an artist could stand on his head in the Little Galleries if he so desired, provided this act was motivated by a sincere desire "to see straight, to feel beauty and form directly, without an undue regard for convention, tradition and authority." "One thinks of [the gallery]," critic Christian Brinton wrote in a similar vein, "as an outpost, an experimental station, quite as much as a gallery, and nothing could be more stimulating than such a state of mind." In such an atmosphere, the painter Arthur B. Carles pointed out,
"everything seemed to fit into everything else...."^9

The atmosphere of self-criticality that Stieglitz fostered in the Little Galleries and Camera Work was designed to advance the intellectual, moral, and emotional growth of the Photo-Secession; he believed this was the only path to take to avoid collapse due to internal dissension or stagnation. However, not all of his intentions were that serious; a heretofore largely ignored component of his psychological aesthetic was humor.

Undoubtedly aware of Stieglitz's intentions, Dallett Fuguet wrote "The Philosophy of Laughter," published by Stieglitz in Camera Notes, July 1902, the last issue he edited. "It is the highest philosophy of life to laugh together," Fuguet wrote, "although we differ on questions of art and science. The differences are, comparatively, so small, often so entirely superficial, and they are so useful for vital development."

Fuguet concluded his essay with a poem:

Comrades in life are we,
All seeking the ultimate good,
Though diverse our tongues may be,
For wide is our brotherhood.\^10

Caffin echoed the drift of Fuguet's poem in his aforementioned "river current" metaphor of 1907, characterizing Photo-Secessionism as a mighty, collective force. As we know, he too contributed humorous parables
to *Camera Work*. In 1906 Stieglitz termed Bernard Shaw the greatest of critics because he was not afraid to criticize himself and still retained a sense of humor.

Humor, for Stieglitz, seems not to have been primarily a release mechanism but a rather probing, yet kind psychological device that would dissolve preconceptions and stimulate construction of novel hypotheses. Thinking of the congenial, but pointed atmosphere Stieglitz fostered, Paul Haviland wrote, "Any passerby may enter and dump his intellectual baggage, good, bad or indifferent in the common heap; and anybody may take what he pleases from the common stock and make it his own." As noted by both colleagues and Little Gallery visitors, at the core of Stieglitz's philosophy of leadership was the encouragement, release, and direct description of experience. Recalling these attitudes at a later date, Stieglitz would quite naturally utilize scientifically premised metaphors. For example, he deemed the works of art to be instruments of measurement, the gallery space to be a light-filled laboratory where public demonstrations took place on a continual basis, and the aesthetic experience, an examination and interrelation of fundamental elements. As his friend Herbert Seligmann summarized, "Stieglitz said of himself that at heart he was a scientist." Notwithstanding the importance of this, Stieglitz's
public attitude, to an understanding of his evolving view of science, it is rather in the privacy of his own laboratory that his most cogent formulations of direct description were made. These evolved from 1905 to 1907 and culminated in the photograph entitled The Steerage.

The Steerage, the Autochrome, and Direct Description

The story of The Steerage (Fig. 2) is well known and has been frequently told. Notwithstanding its familiarity to historians of photography and modern art, it is worth retelling, so that its place in Stieglitz's oeuvre may be carefully established.

The trip to Europe that brought the image into being has been described as a mixed blessing. Plagued by financial worries which threatened the future of the Little Galleries and Camera Work and depressed by physical and family problems, Stieglitz planned the trip as a vacation and had only hopes--no real plans--for discussing photography with his expatriate friend Eduard Steichen and with his European colleagues. In addition, the prospect of spending the trip in the first class section of the luxury liner Kaiser Wilhelm II oppressed him. Apparently, the only "salvation" he could fathom was the opportunity the trip gave him to photograph. To that end he purchased a new camera, and began taking snapshots even before the ship departed from the New York harbor.
Knowing his distaste for the appurtenances of wealth and prestige, it is not difficult to understand that Stieglitz preferred to take pictures in the vicinity of the steerage section of the ship rather than on the first class deck. He recounted the taking of the Steerage negative as follows:

A round straw hat, the funnel leaning left, the stairway leaning right, the white draw-bridge with its railings made of circular chains--white suspenders crossing on the back of a man in the steerage below, round shapes of iron machinery, a mast cutting into the sky, making a triangular shape. I stood spellbound for a while, looking and looking. Could I photograph what I felt, looking and looking and still looking? I saw shapes related to each other. I saw a picture of shapes and underlying that the feeling I had about life.16

In this brief passage, brimming with memories undimmed by time, Stieglitz revealed the philosophy he had developed while immersed in the Photo-Secessionist fold. In the company of Sadakichi Hartmann he had visualized architectural and machine-made structures as geometrical units. In the company of Charles Caffin he must have discussed principles of constructive and abstract organization, perhaps those associated with engineering technologies.17

Stieglitz however did not learn these principles from his two associates; his mechanical engineering training alone would have sufficed to "engineer" his thinking towards structure, function, efficiency, and the interrelationship of component parts. Under A. W.
Hofmann he had learned to analyze, then synthesize chemical compounds. And Ernst Mach, who published a summation of his philosophy in 1905, believed that the symbolic process and symbols or sensations themselves hewed to a principle of economy. "Concise, abridged description is sought," Mach stated, continuing, "This is really all that natural laws are." When in a popular lecture he also stipulated that "the aim of research is the discovery of the equations which subsist between the elements of phenomena," he concluded that the corollary of those equations was their function: "All physical ideas and principles are succinct directions, frequently involving subordinate directions, for the employment of economically classified experiences, ready for use."

Working within these theoretical concerns, in the late 1880s Stieglitz had perceived European streets as geometric compositions; abjuring genre incident, he had focused on planes, solids, and voids (Figs. 6, 29, and 61).

He had photographed the avenues and buildings of New York as structurally and mechanically synthesized entities in the early and mid-1890s. For example, The Subway Entrance of 1896 (Fig. 31) is a structural synthesis of rectangular prisms (the buildings) and cylinders (the trolley and adjacent figures). Snapshot, in the New York Central Yards (1903, Fig. 26) and to a lesser extent
even *The Hand of Man* (1902, Fig. 47) are mechanically
conceived syntheses of machines and the byproducts (smoke
and steam) of mechanical energy. *Nearing Land* of 1904,
probably the image closest in theme and feeling to *The
Steerage*, is a view of the steerage section of a transatlantic liner (Fig. 62).

*The Steerage* distinguishes itself from these
antecedent prints by both its scientific clarity and its
organic and aesthetically radical intent.

This is not to say that the forerunners of *The
Steerage* were considered non-radical or unscientific. In
"A Dissertation on Planes," his review of the New York Camera Club exhibition held early in 1905, photography
critic Roland Rood singled out *Horses* of 1904 (Fig. 63)
because of the abstract, planar relationships Stieglitz
synthesized in fluid equilibrium. Several months
earlier Rood had written in a similar vein, "The physici-
cists have demonstrated that there is no true system of
values, that truth of values in art is a mathematical
impossibility, and that all systems of values resolve
themselves into the personality and idiosyncrasies of the
artist."

Whereas Rood's "dissertation on planes" attempted
to establish general principles of composition according
to a Stieglitz-derived model (for example, "tell your
story in the fewest possible planes"), its strength lies
in its description of Stieglitz's relational thinking: "out of the hundreds of different focal relations the foreground and background could have had to each other, [he] chose exactly the right one." 23

Writing in 1904, Sadakichi Hartmann felt that Stieglitz’s photographs were descriptive not only of natural laws (the physicality of matter, space, and atmosphere) but of a new "direct" aesthetic Hartmann termed "straight photography." Hartmann defined straight photography as first, the reliance upon basic, non-manipulative photographic processes (including retouching, dodging, and other forms of accentuation, but not graphic scribbles such as brushing or scratching) and secondly, the production of a practiced and studied structural composition keyed to capturing movement. 24 "The photographer interprets by spontaneity of judgment," Hartmann wrote, singling out Stieglitz’s "composition by the eye" and "true pictorial instinct." 25

Although Hartmann did not mention Stieglitz's 1904 images in his two articles on straight photography, he undoubtedly admired and probably encouraged Stieglitz to pursue the subjects and unmanipulated printing techniques he was exploring that year (notions he had also explored earlier in the urban photographs Hartmann favored, as well).

For example, in the photogravure Going to the Post,
Morris Park (Fig. 46), Stieglitz dramatically structured a portion of grandstand and race track on a single plane by anchoring them within two bays of the grandstand's cast iron framework. As noted, "foregrounding" the composition was a decorative move on Stieglitz's part, showing his indebtedness to Japonisme in painting and photography. The foregrounded elements here are not static, as for example in his own Spring Showers (Fig. 44) or in Coburn's similar work of this time (Fig. 51), but horses and riders are seen rounding the track, describing varying paths as they head toward the post.

Similarly, the crewman of Nearing Land (Fig. 62), having just dropped the ship's anchor, strains as he hoists the ropes. Invisible but palpable lines of force press outward towards the viewer (the momentum of the ship), laterally against the vessel (the ocean current), and laterally away from the vessel (its drift to the right, out of the frame).

For Hartmann as well as Stieglitz, evocations or generators of movement and speed were best suited to capture the evolutionary dynamics of the age. Writing in 1904, Hartmann both described his friend's new development and prophesied its fulfillment in The Steerage by stating, "By means of long-continued experiments--he was the first photographer who successfully introduced moving figures into a photographic composition....[Stieglitz]
found a new medium of expression for pictorial art...."[26]

Hartmann's was the most outspoken and most cogently argued theory of straight photography in the years immediately preceding the taking of The Steerage.

(Straight photography was by no means invented by Hartmann and the writers discussed below; they merely gave it a name and specified its dynamic [that is, neo-romantic] and technical corollaries.) It is important to note, however, that other voices reinforced Hartmann's and undoubtedly influenced Alfred Stieglitz to pursue this very modern, yet historically sanctioned avenue of image making.[27]

As might be expected, constructivist critic Charles Caffin preferred straight to manipulated developing and printing because manipulation was not a "reliance primarily upon the scientific qualities of the medium."[28] Neo-Lamarckian critic and photographer G. B. Shaw placed straight photographic images at the top of his evolutionary ladder because of their "unmechanicalness," denigrating manipulated ones as being rather mindlessly produced by mechanical draftsmen who "substitut[ed] an easy, limited, and exhausted process [of graphic art] for a difficult one which has never yet been pushed to the limit of its possibilities."[29] And British architectural photographer Frederick H. Evans, Stieglitz's friend and fellow "Link," valued the straight print because he felt
"the essential value of pure photography [was] its convincing power and suggestion of actuality"; the addition of draftsmanly or painterly detail only served to mitigate "broad and subtle effects of light and shade" and the "grandeur of line and mass."\textsuperscript{30}

Undoubtedly the impact of Evans's words was strengthened when his essays were paired with his work. (Stieglitz published both in \textit{Camera Work}, but not in the same issue).

Although he engaged in "modestly manipulative" practices such as masking his negatives of church interiors,\textsuperscript{31} Evans was a master of direct description: stalking the naves and ambulatories of English Gothic cathedrals, he abstracted their tunneling and twisting spaces by framing them between columns, piers, and sections of walls, and by bathing them in shafts of light. Albeit scientifically trained, he was a romantic by inclination and definitely not tuned to Machist concerns--for example, he described his \textit{Sea of Steps--Wells Cathedral} (1903, Fig. 64) as "the surge of a great wave that will presently break and subside into smaller ones."\textsuperscript{32} Nonetheless, Evans conceived his images as economical in thought and form.

Unquestionably Stieglitz's later views of Manhattan harbors and skylines, constructivist photographs in which planar surfaces and receding spaces are fluidly equili-
brated, maintain a debt to Evans's cathedral interiors. Their most direct source, however, is The Steerage.

When printing The Steerage, Alfred Stieglitz did not crop the negative, as had been his practice in the 1890s and would sometimes be again in 1910 (in Winter--Fifth Avenue and The Dirigible respectively). Rather it was his intention to proof the negative, then enlarge it for Camera Work and for an 11 x 14" exhibition photogravure.\footnote{33} In "Four Happenings" of 1942, Stieglitz described the first proofs of The Steerage, made in New York in the fall of 1907: "Two beautiful plates were made under my direction, under my supervision, and proofs were pulled on papers that I had selected. I was completely satisfied. Something I not often was, or am."\footnote{34}

This satisfaction likely resulted from all of the "looking and looking" that Stieglitz had deemed necessary for the conception of the image. Extended contemplation (thought experimentation) resulted in the image becoming fixed in his mind as a mathematically precise, structural entity--as an artifact of Machist direct description--and the success of the final composition hangs on that precision.

As has been described, Mach believed that science evolved by substituting direct description, namely the abstract apprehension and interrelationship of facts, for indirect description, which he defined as the comparison
of a new fact with others previously apprehended. In other words, for Mach the complex internal and environmental associations with which we invest phenomena are not as scientific as simple, instrumental descriptions of them. Indirect description suggested and contextualized, direct description stated.

Viewed as antecedent formulations to The Steerage, Stieglitz's New York photographs of 1893-1904 are still indirectly descriptive. Structural elements, while present, are compared to non-structural elements—bare or snow-covered trees, a sailboat or solitary figures—which frame and to a certain extent romanticize them. Moreover, each cropped image (for example, Winter, Fifth Avenue) must be thought of as one element of a pair, the other element being the entire negative which Stieglitz ultimately chose not to use (Figs. 20 and 21).

The Steerage, however, is directly descriptive. Structural elements—the smokestack, beam, upper deck, lower deck, and connecting drawbridge—are presented as interconnecting forms and without romantic or non-structural accompaniment. At the same time they are fused into a two-dimensional construction blending intricacy with simplicity, these elements read as component parts of a solid, yet fluidly functioning mechanism. There is no superfluity; the figures either complement or anchor the mechanical and structural elements, just as Stieglitz
previsualized them. His description of the shooting of this picture makes this quite clear:

Spontaneously I raced to the main stairway of the steamer, chased down to my cabin, got my Graflex, raced back again all out of breath, wondering whether the man with the straw hat had moved or not. If he had, the picture I had seen would no longer be. The relationship of shapes as I wanted them would have been disturbed and the picture lost.

But there was the man with the straw hat. He hadn't moved. The man with the crossed white suspenders showing his back, he too, talking to a man, hadn't moved, and the woman with the child on her lap, sitting on the floor, hadn't moved.35

Mach's ideas also explain the interrelated physicality of form in The Steerage, for example, the pressure exerted by the drawbridge on its support, which corresponds to the opposing outward thrust of a smokestack. In Stieglitz's earlier images premised upon the palpability of matter and atmosphere, for example The Subway Entrance of 1896 and Snapshot--in the New York Central Yards of 1903 (Figs. 31 and 26), steam, smoke, and form coalesce to form opaque and essentially isolated structures. For Stieglitz these were artifacts of vision and meant to be interpreted as such. In The Steerage, on the other hand, matter and force conjoin to form a single structure--Stieglitz's--that they hold in equilibrium. Indirect physical description (What is force like?) is replaced by direct physical description (What structures can forces be made to create?). Mach's explanation of this physical and mental process prefigures Stieglitz's
visualization of it:

Long and thoroughly practised actions, which have their origin in the necessity of comparing and representing facts by other facts, are...the very kernel of [directly descriptive] concepts....[a] vast amount of individual labor, theory, and skill [is required] before the ideal of direct description could be realised....

Description is a building up of facts in thought, and this building up is, in the experimental sciences, often the condition of actual execution....the metrical units are the building-stones, the concepts the directions for building, and the facts the result of the building (italics mine).\textsuperscript{36}

Did Stieglitz feel a bond with the mass of humanity that he captured on film, most of whom, we may assume, were dissatisfied or disillusioned immigrants returning to lives of drudgery in Europe? There really is no indication that he did. Stieglitz termed \textit{The Steerage} "a picture based on related shapes and on the deepest human feeling, a step in my own evolution, a spontaneous discovery."\textsuperscript{37} It is probable that he sympathized with the Europeans' plight, but in such a way that this emotion reinforced his own plight of being a "prisoner" in first class luxury. Stieglitz did not wish to join the steerage passengers, but (to use an overly harsh word) to exploit them as "component parts" of an intense perceptual and conceptual discovery. Caught up in the fervor of an experimental moment, Stieglitz viewed these people as related human shapes and forms, no more.

There is another factor to be considered. The very
fact of his desire to capture a casual grouping of figures in arrested motion within a functioning mechanism (the ship) implies that Stieglitz's vision was a complex, organic one.

The American organic metaphor, it has been noted, defined evolution as spontaneous and passing through stages of instability on the way to equilibrium. This metaphor has been related to the organism that was the Little Galleries of the Photo-Secession, and to Camera Work. It has also been shown that sections of critical controversy or "instability" printed in the latter fit as well into an evolutionary scheme.

Once again, The Steerage also illustrates this metaphor. Stieglitz first saw an image teeming with instability, then waited for it to right itself so as to lock all the structural elements (which he had positioned and diagramed on the viewfinder) into functional alignment. Of course he was incredibly lucky; one misplaced gesture would have ruined the picture. What is significant is that Stieglitz described the taking of the negative as a passage from instability to stability, and as an organic interrelationship of parts.

Nine years before he took The Steerage, Stieglitz wrote an article for the American Annual of Photography entitled "Night Photography with the Introduction of Life." In it he implied that when accompanied by fig-
ures, halation and reflection would enliven artistic urban photographs, mollifying their inherent rigidity. Writing in a 1905 essay, "Simplicity in Composition," Stieglitz claimed the clear, direct depiction of surface, space, and singular objects, and the interrelationship of objects to the picture frame, to be significant pictorial disciplines. Had he written a corresponding article based on his experience with The Steerage, he could have called it "Daylight Photography Predicated upon the Direct Description of Life." After having guided the Photo-Secession for five years, Stieglitz had come to the conclusion that life (the organism that was the Little Galleries and Camera Work) and art (his new conception of photography) comprised flexed and flexible imaginative structures.

Viewed in these instrumental and Machist contexts, Stieglitz's photographs of 1910 take on more significance than scholars have previously granted. For example, Homer grouped these later images, including the reductivist Dirigible and Aeroplane, with Stieglitz's earlier work, terming them all Whistlerian, Japoniste planar constructions. According to James S. Terry, Stieglitz's 1910 pictures evidence a "progression" from scale relationships (The City Across the River), to qualified acceptance of urban development (Old and New New York), and finally to "the 'relations of forms' and
their resonance for the human mind, imagination, and emotions" (Old and New New York and Dirigible). 41

Although it is true that Stieglitz preferred to work with a limited depth of field in his Manhattan river scenes, this was not because of a desire to replicate the feel of Whistler's paintings or Coburn's Whistlerian Thames River photographs. The latter bespeak quiet reverie, while in The City Across the River, for example, (Fig. 65) Stieglitz engineered a cluster of harbor pilings, the thrusting platform of a freight dock, and a passing tugboat into a mechanism that tugs intervening space into a dynamic curvilinear configuration.

Likewise in Ferry Boat (Fig. 66), the ominous black form of the ferry moves toward the corresponding boat-like structure formed by the pilings, compressing the space between them into a palpable black void.

Closer analogues to these images are the Prouns that Russian constructivist artist El Lissitzky would create in the early 1920s (Fig. 67). Just as, in the Prouns, "space ceases to be a vacuum between objects and becomes spherical or arched," 42 in the Stieglitz river photographs space expands, contracts, and occasionally cuts into objects (although to a lesser degree than in the fully abstract El Lissitzky drawings).

Terry is also only partly correct in seeing a progression in these Stieglitz pictures. The most cogent
example of this is evident in *Old and New New York* (Fig. 68), the composition of which leads the eye from palpable and isolated material objects (curb, hedge, scale figure, foreground buildings) to an imaginative structure in the background whose materiality lies in its purely photographic existence (the transparent, steel prism anchored in clustered brownstones). This photograph also demonstrates Stieglitz’s progression from indirect (comparative) to direct (non-comparative and abstract) description, because the steel-framed skyscraper under construction can be viewed in another way: considered by itself, it requires the brownstones only to provide scale, not presence. A skeletal, abstract object, it appears to alight upon the scene, tracing itself as weightlessly as a mathematical equation on paper.43

The importance of *The Steerage* in Stieglitz’s *oeuvre* has recently been questioned. Terry has argued that since the image was not followed by others reflective of similar concerns until 1910, and that since Stieglitz did not publish it in *Camera Work* until October of 1911, he did not realize its potential meaning at first. Furthermore, it was the claim of American artist Max Weber that he discovered this photograph, then pointed out its importance to Stieglitz.44

While it is probably true that Stieglitz "rediscovered" *The Steerage* when he returned to his New York
series in 1910, and that its significance was reinforced by Pablo Picasso's comments about it in 1914 (when shown the picture by Marius de Zayas, Picasso supposedly said, "This photographer is working in the same spirit as I am")45 it is clear that the experience of taking it affected him immediately. As Stieglitz stressed, its creation constituted a crucial step in his evolution as a photographer. This is because The Steerage, the solution of an experimentally posed problem, marked Stieglitz's reentry into the sphere of scientific photography, preparing him to embrace the experimental notions of modern art. (Similarities between Stieglitz's mature Machist aesthetic and the early twentieth century French painting he exhibited at "291" from 1908 to 1910 will be discussed in Chapter Ten of this study.)

Although the taking of The Steerage was the most important event of 1907 for Alfred Stieglitz the amateur photographer, the invention of a practical process of color photography was the most important event of that year for Stieglitz in his role as gallery director.

It has been suggested here and by Richard J. Kent, Jr. that his introduction to the Lumière Autochrome process in Paris in 1907 is what spurred Stieglitz to vigorously reassess the future of fine art photography.46 While the following discussion proves that this was only partially true (his own work and his promotion of
straight photography were also instrumental in this regard), it is important to review the critical literature written about the Autochrome and related color processes in 1908. This exercise reveals a not so startling fact: whereas Stieglitz was not the only one who formulated an Autochrome-derived philosophy, his was by far the most advanced.47

For its early proselytizers the most radical quality about Autochrome work, aside from the beauty of the transparencies, was its non-malleability. As Alfred Stieglitz bluntly commented, "Hand-work of any kind will show on the plates—that is one of the blessings of the process—and faking is out."48 Success in Autochrome work would depend on the photographer’s "sixth sense" of exposure and his skill in development, as Steichen, Stieglitz and the German photochemist A. C. Brasseur all demonstrated.49

The British critic Dixon Scott, who wrote an introduction to Colour Photography (1908), a book of prints collected by Coburn, was troubled "that the aesthetic effect was as automatic as the technical effect." Writing in the style of the Symbolist and neurasthenic critic Jules Laforgue, Scott claimed:

We all know that when we survey a landscape we do not see each colour independently, at its intrinsic value, but that all sorts of strange feuds and alliances going on between the colours as they settle themselves in the chamber of the eye result in an
image curiously interwoven and interdependent—this colour being subordinated to that, another thrilling warmly in response to the attentions of a fourth, a fifth and sixth entering darkly into a sinister suicidal pact.

Autochrome pictures, Scott lamented, were

picture[s] which ha[ve] been suddenly robbed of all those delicate nerves and tendons of pervasive colour-chords, the sly echoes and running threads, which the painter uses to pull his work into one mounting accordance....The result of this elaborate and complete ambush is a complete surrender on the part of the colour-rays.50

Judging by his dedication to three-color processes, Steichen would appear to have been the one photographer and writer who could foresee new aesthetic possibilities in the pre-eminently straight and direct Autochrome technique. This may have been because Steichen was a painter as well as a photographer. It would seem likely that, having experimentally verified the new dimension of photography, (in actuality, Steichen had been working in three-color photography since at least the beginning of the century51) he would attempt to compare it to new dimensions in painting.

Not only the example of Paul Cézanne, but that of Henri Matisse and other French Fauve painters could have given Steichen ready models of comparative coloristic brilliance. However, in his 1908 essay "Color Photography," Steichen stated that the dazzling luminosity of an Autochrome image was comparable only to a painting by Auguste Renoir or Claude Monet.52 In point of fact, the
watercolors of Paul Cézanne, which he had seen with
Stieglitz at Bernheim Jeune et Fils’ gallery in Paris the
previous year,53, were much more luminous than Renoir’s
oils.

Whereas Stieglitz was to consider the Lumières’
discovery a "direct" directive for rethinking painting,
Steichen was much more cautious. During the period when
he was experimenting with the Autochrome and other color
processes, Steichen lightened and brightened his palette,
but he did not revitalize his imagery. Cooper’s
Bluff—Moonlight Strollers of 1905, and Across the Crest
of the Great Divide of 1907 retain the same indebtedness
to Whistler and Böcklin as appears in his black-and-white
photographs of the same period (Fig. 69 and 34).54

Actually, Eduard Steichen felt that color photogra-
phy signaled not the advance, but the demise of imagina-
tive photography. Furthermore, he believed that the
Autochrome eliminated the pictorialist aesthetic from
competition with painting. In his 1908 essay for Camera
Work, "Painting and Photography," he claimed (in support
of straight photography and the aesthetic of G. B. Shaw):

the complete demonstration of the superiority of the
lens and of light in the hands of an artist, over the
brush and palette for the making of
photographs....feeling confident that even the most
conservative critic will soon discover the superiori-
ty, at least in portraiture, of photography per se
over the big majority of so-called portrait paint-
ings.
In a very un-Shavian sense, he also stated that photography

can never be a great art in the same sense that painting can; it can never create anything, nor design. It is basically dependent on beauty as it exists in nature, and not as the genius of the artist creates it. It is an art entirely apart and for itself.... the greatest photograph of a living woman that can ever be made will be much less beautiful than the Mona Lisa....55

According to Steichen, great modern paintings, such as those by Whistler, were works of genius because they were abstract; the representative art of photography could never achieve Whistler's simplicity and patterning, and Winslow Homer's "brilliant virtuoso performance of...brushwork." In a strange throwback to pre-Autochrome aesthetics, Steichen also eliminated from photography "low-toned color analogy," which suggests the color of his Autochrome prints.56

Even Charles Caffin, the most constructively abstract critic in Stieglitz's circle, could only dimly foresee that an abstract aesthetic might emerge from the Autochrome revelation. In his 1908 essay, "The Camera Point of View in Painting and Photography," probably written after he had interviewed Matisse,57 Caffin did allow that color photography might "be made to yield color-harmonies of extraordinary beauty," but he believed with Steichen that the full range of the imagination was "outside...the photographic point of view. The camera is
as powerless to explore it as is the photographic method of painting."

As has been noted, Stieglitz was as excited as Steichen about the possibilities of color photography after the invention of the Autochrome process; his own experiments proved that its pictorialist as well as mechanically reproductive possibilities were great. Having prophesied that color photography had much to offer to amateur as well as technical photographers, in the fall of 1907 Stieglitz proclaimed:

...the effect of these pictorial color photographs when up to the Secession standards will be revolutionary, and not alone in photographic circles. Here then is another dream come true. And on the Kaiser Wilhelm II I experienced the marvelous sensation within the space of an hour of marconigraphing from mid-ocean; of listening to the Welte-Mignon piano which reproduces automatically and perfectly the playing of any pianist...while [he was] thousands of miles from the piano...and of looking at those unbelievable color photographs! How easily we learn to live on former visions!

This statement by Stieglitz implies that in his mind the Autochrome process announced a new thought in painting as well as in photography. At the time he wrote this pronouncement he already had an idea where this "thought" might lead. Having seen works by Cézanne with Steichen and having decided to mount an exhibition of Auguste Rodin watercolors Steichen had selected, Stieglitz undoubtedly felt these artists were the ones he should watch. (It is important to note, however, that
Stieglitz admitted he neither liked nor understood Cézanne in 1907; he still needed time to determine the rationale of his construction.\textsuperscript{61})

Beginning in 1908, Alfred Stieglitz initiated a series of exhibits in his gallery predicated upon color: these included works by Matisse, the American color painters influenced by Matisse and Cézanne (Max Weber, John Marin, Alfred Maurer and Arthur Dove), and Steichen.\textsuperscript{62} Whereas the scope of this study does not permit an examination of the oeuvres of these significant early modernists or the circumstances surrounding Stieglitz's discovery of them (these issues have been covered elsewhere\textsuperscript{63}), it is important to note that he believed Steichen to be their precursor, not their aesthetic equal. In addition, he now was convinced that although dedication to photochemical experimentation was an indication of modernity, a photographer could not be considered truly avant-garde unless he also professed a scientifically modern philosophy. Stieglitz's actions and comments of 1909-10 make this clear.

Significantly, Stieglitz scheduled the 1909-10 season to feature an exhibition of Matisse's drawings after a show of color transparencies by Steichen. Writing in April 1910 of the January Steichen show (held simultaneously with an exhibition of Steichen's paintings at the Montross Gallery), Stieglitz explained that
the daring of some of [Steichen's] color combinations can only be excused by the success with which he solved the problems he had set for himself. He seems to have achieved the maximum of brilliancy and luminosity obtainable from the process. Interesting experiments in artificial light effects show the range of conditions under which the process can be successfully used by capable hands.64

The Steichen exhibition demonstrated the power of new techniques in technically astute hands (Fig. 59). However, he wrote in a later paragraph of the same report that the Matisse exhibition

exemplified positively the power and sanity of the man, his scientific and almost mathematical attitude toward form, his almost Oriental sense of decorative spotting, so irreconcilably opposed to some of the more emotional tendencies for which critics have tried to make him responsible.65

While it is true that this description of Matisse's painting is not as accurate with respect to the French artist's work of 1910 as it would be by 1914-16, Steiglitz was correct in identifying the advanced thinking represented by the Fauvist's flattened space, formal coherence, and "decorative spotting," as seen for example in Joie de vivre of 1905-06 (included in Steiglitz's exhibition, Fig. 70), and in Goldfish of 1910.

Other critics writing on Matisse's paintings--on view in America at this time only at Steiglitz's gallery--were finding Matisse's works childishly naive. Even the construction-oriented Caffin, who had interviewed Matisse two years earlier, could not fully accept his style, claiming it to be "the fumbling of a person
who cannot draw. The grotesqueness of the whole thing shocks you. It is impressionism run mad!"66

Finally, while the March 1910 exhibit "Younger American Painters" was on view in the Little Galleries, Stieglitz commented to the journalist Israel White:

The men who have gone along with the tide have developed into makers of colored photographs. Then color photography—note the distinction between colored photographs and color photography—showed that the painters' colors were all wrong and that better results along this line could be secured mechanically [for example, Steichen's Autochrome portrait of Bernard Shaw]. That knocks the pinning out from under the artistic house and the builder must set to work anew to secure more color and a new idea in painting.67

Recalling Mach's very similar metaphor of the builder who erects structures with ideas,68 it is clear that the Autochrome process, like The Steerage, helped Stieglitz to realize that the direction of modern art was toward the conceptual and the abstract, toward color painting and a "scientific and almost mathematical" attitude of form.69

Considering the modernity of Stieglitz's ideas at this time, another reading of his 1907 Autochrome "revelation" can be made. While on board a ship bound for New York, Stieglitz availed himself of its modern communication technologies, presumably for both business and pleasure, then marveled that the transparency, immediacy, and presence of Autochromes were equally visionary.

At first glance, this might easily be interpreted
to mean that just as the mechanical piano brought the performances of world-famous pianists to life, so Autochrome portraits (as he mused, he probably was looking at those by Steichen) brought the image of the sitter or sitters to life. Underlying the obvious meaning is another that makes sense only in the context of European modernism. What Stieglitz must actually have been talking about was simultaneity, the bringing together of elements widely disparate in space and time.

As defined by the French writers Jules Romains, Henri-Martin Barzun, Blaise Cendrars, and Olivier-Hourcade in the years 1908-12, simultaneity was a state of consciousness brought about by the technological developments of the modern age, specifically the artifacts of speed (such as, for example, the Eiffel Tower, a "laboratory" for aerodynamics research\textsuperscript{70}). It was "the materialization of the forces which combine together, of the things and the beings...the rendition [in them] of life as it really is."\textsuperscript{71} Furthermore, simultaneity or dynamism denoted "a concern to probe beneath ephemeral aspects of sensation, to the underlying forces and abstract principles governing contemporary life."\textsuperscript{72}

Lacking any evidence as to Stieglitz's familiarity with these writers, it is entirely plausible that he came to his own similar conclusions totally independently. Given the early date of Stieglitz's statement—September
1907— it is also conceivable that Stieglitz's was one of the first simultaneist pronouncements. The fact that he formulated these avant-garde ideas on the same passenger ship where he had photographed *The Steerage* points to the probability that he had, at least subconsciously, conceived this negative to be an exemplification of these ideas.

Predicated on dynamic form, *The Steerage* was simultaneist *avant la lettre*, a new thought in photography. The underlying forces and abstract principles of the work were Stieglitz's own forces and principles. Previsualizing a mechanism equilibrated to incorporate motion and direction in its shapes, forms, and combinations of forms, he transformed literal dynamism (the movement of the ship) into abstract dynamism (the potential movement of the ship's components and passengers, captured within the frame). This new notion of abstraction—interrelated forms—he later applied to describe a new aesthetic of color, discovering in Matisse's art "direct" and brilliant diagrams of sensation.

Alfred Stieglitz's European trip of 1907 was revolutionary because it opened a new chapter in his photography, and because his experience paralleled similarly radical developments in painting, for example, the dynamic, machine-like Cubism developed c. 1909-11 first by Picasso (Fig. 71), then by Jean Metzinger and
Fernand Léger. Most importantly, in 1907 Stieglitz was at last able to meld the two major directions of his personality, finally becoming a Machist as well as an artistic investigator.

In his negative, The Steerage, Alfred Stieglitz realized for the first time a truly avant-garde scientific aim, the direct, abstract description of phenomena. He was prepared to achieve this because of his photographic investigations of 1904, encouraged by Sadakichi Hartmann, Charles Caffin, and Frederick Evans, and as a result of his now fully developed Machist world view, which had first led him to tentatively experiment along these lines in the mid-1890s. (His belief that in his position of gallery director he should be a stimulator and mediator of experience can also be considered Machist.)

The Steerage and the Autochrome stimulated Stieglitz to express more precise and dynamic ideas than he had been able to devise during his first mature experimental phase. Notwithstanding his support of Steichen, an artist of great technical virtuosity, he was able to point to Matisse as the one who was working with a "scientific and almost mathematical attitude toward form." 73

Interestingly, Stieglitz never did become a color photographer. His initial ebullience about the possibil-
ities of Autochrome work (in 1907 he claimed, "We venture to predict that in all likelihood what the Daguerreotype has been to modern monochrome photography, the Autochrome-mototype will be to the future color photography") paled when he discovered that major technical problems were embedded in the process, the most vexing of which were frilling (emulsion wrinkling) and the difficulty of obtaining faithful reproductions in print. Nonetheless, he continued to maintain that color photography was an important scientific invention, and that both painting and photography needed to become more scientific in scope.

The penultimate chapter of this study will treat the implications of Stieglitz's science to fin-de-siècle art photography, to the philosophy of the Little Galleries, and to the Galleries' most important legacy, the introduction of modern European art to America.
NOTES

1. When Stieglitz sponsored these gatherings (they continued at the Holland House in later years), he saw to it that each participant was able to express himself fully and participate vigorously (Kotynek, pp. 106-07).

2. Stieglitz to Heinrich Kühn, November 1906, quoted in Taylor, p. 89.

3. Stieglitz to Bayley, 1 November 1916, YCAL.

4. "He emphasized the art of seeing and tried to make visitors form their own judgments, without preconceptions. He became annoyed with aggressive people who approached him with an attitude of 'you show me, you tell me.'...Much of the spirituality that others saw in Stieglitz stemmed from this candid exposure of his inner mind. His example, in turn, helped the artists reveal themselves in their work" (Homer, American Avant-Garde, p. 48).


8. "By the turn of the century, there were about three dozen psychology laboratories at the nation's major universities [including Columbia], and, to everyone's astonishment, there were more Ph.D. degrees awarded in psychology than in any other discipline save chemistry" (William Kessen and Emily D. Cahan, "A Century of Psychology: From Subject to Object to Agent," American Scientist 74 [November-December 1986]: 642).
Agnes Ernst Meyer, a former Dewey student, interviewed Stieglitz for the New York Sun in 1908 and, after several months of study in Paris in 1909, became a Stieglitz circle intimate. Her ideas are noted in Chapters Ten and Eleven.


11. Two examples are, "Past the Wit of Man to Say What Dream It Was" (CW July 1906), and "Is Herzog Also Among the Prophets?" (CW January 1907).


17. Although he used terms associated with engineering philosophies in his early (pre-1907) writings, Caffin did not utilize engineering metaphors until the period 1911-13. For example, in 1913 he wrote:

[Art for Life's Sake] aims to show that the industrial organizer, the surgeon, the physician, the engineer and, in general, all who are working toward the highest possibilities of efficiency, are artists. That to govern a city well, or to order a house beautifully, or to build up an industrial unit of harmoniously related workers, achieving a maximum of productiveness under conditions of welfare to the individual and the community—needs art and artists (Caffin, Art for Life's Sake, p. 12).

In his Story of French Painting (1911), Caffin proclaimed that Matisse's modernity lay not so much in the realm of pure art, but in efficiency he achieved by "simplification, organization and expression":

Substitute for expression the economic equivalent, efficiency, and you have the secret by which the
barons of finance and industry have acquired their bloated power, and by which alone their power can be checked in the interest of the public. For the system embodied in the ideas has come to stay; and the problem which confronts the statesmen of the present time is not to overthrow the results of trust-combination, but to discover how the benefits of efficiency as the result of simplifying and organizing production can be extended from the strong-boxes of the few to the well-being of the many (Caffin, *The Story of French Painting* [New York: The Century Company, 1915], pp. 211-12).

The most direct source for these ideas is efficiency theory, which was created in 1907 by the mechanical engineer Frederick Winslow Taylor. Taylor's efficiency movement stipulated that economy of motion or energy was directly proportional to worker productivity. The power behind Taylor's efficiency theory was the systems planner, mastermind, or "controlling consciousness." As Cecilia Tichi has demonstrated, this instrumental consciousness should not be thought of as a faculty possessed solely by Taylorist foremen, but as an American idea which had "momentous implications" for writers (Tichi, p. 79).

Undoubtedly, Caffin discussed these ideas with Stieglitz before he applied them to his art criticism.

18. Mach's *Erkenntnis und Irrtum* (Knowledge and Error), came out that year.


20. Ibid., pp. 204, 205.


As early as 1899, in "Portrait Painting and Portrait Photography," Hartmann prophesied that blurred lines, color photography and motion pictures were best suited to capture the rhythms of modern life.

Interestingly enough, in 1907 Henri Bergson would analogize duration to the operation of the cinematograph, the Lumière brothers' primitive film projector, invented in 1895. In a chapter called "Form and Becoming" in his book Creative Evolution (1907), the French philosopher described "movement in general" photographically. We see "snapshots" of duration in the cinematograph as it "unrolls, bringing in turn the different photographs of the scene to continue each other, that each actor of the scene recovers his mobility; he strings all his successive attitudes on the invisible movement of the film," Bergson wrote. But snapshot vision, he reminded his readers, is not "attaching ourselves to the inner becoming of things" (Bergson, Creative Evolution, p. 306).

Although the Italian Futurist painter Umberto Boccioni is considered to have most closely applied Bergsonian principles in works such as Il Lutto (1910), La Risatta (1911), and Materia (1912), for example, (See Brian Petrie, "Boccioni and Bergson," Burlington Magazine 116 [1974]:140-47) Hartmann's earlier plea for color and motion photography may well have been prophetic. Stieglitz's own notion of dynamism, demonstrated in The Steerage, was also prophetic of Boccioni's.


31. Naef, p. 158.


33. These intentions of Stieglitz's are sufficient proof, I believe, that he did not dump the image into a pile of rejects, then forget about it, as James Terry avers (Terry, "The Problem of 'The Steerage,'" History of Photography 6 [July 1982]:211).


34. "Four Happenings," p. 130.

35. Ibid., pp. 128-29.


39. Stieglitz, "Simplicity in Composition," p. 171. In this essay Stieglitz also advocated continual study of works of art, to "analyze them, steep yourself in them until they unconsciously become part of your esthetic being."

40. Homer, Photo-Secession, pp. 155-57.


42. Boris Brodsky, "El Lissitzky," in Stephanie Barron and Maurice Tuchman, The Avant-Garde in Russia 1910-1930: New Perspectives (Los Angeles: Los Angeles County Museum of Art, 1980), p. 92. Like Stieglitz, El Lissitzky was mathematically inclined. He was highly influenced by notions of space time discovered by Einstein and Minkowski in the early twentieth century and
popularized in the years after 1919. He was also interested in non-Euclidean geometries, particularly the parabolically curved spatial envelope envisioned by the nineteenth century Russian geometrician Nikolai Lobachevsky. Non-Euclidean and four-dimensional geometries were introduced to Stieglitz by Max Weber, who wrote about them in Camera Work in 1910. There is no direct proof that these ideas affected Stieglitz at this time, but then again, their potential influence need not be discounted.

43. On the occasion of Stieglitz's publishing this new work, Hartmann wrote an article entitled "Structural Units." Ostensibly a piece about Weber's geometrical painting, it also discusses geometric notions per se, relating them to conceptions in other mediums. Hartmann had observed Stieglitz's development in this regard for a decade, thus his comments undoubtedly refer to Stieglitz as well. He wrote:

Geometrical shapes form the intelligent and austere understructure of all arts, in a palace as well as a poem, in a symphonic movement as well as in a monument or a mural decoration. A rhomb, an isosceles and ellipse are beautiful in themselves. The painter who pursues this path of the harmonic relation of parts will have the big conception of the generality of things, without which art lacks the sense of proportion and inner harmony, no matter how enchanting it may appear to the casual beholder (Hartmann, "Structural Units," CW no. 36 (October 1911):19).

44. Terry, "'The Steerage,'" p. 211.


46. Kent, p. 352.

47. These authors included Dixon Scott (introduction to Colour Photography, ed. C. Holme [London, 1908], pp. 1-10); Eduard Steichen ("Painting and Photography," CW no. 23 [July 1908]:3-6); and Charles Caffin ("The Camera Point of View in Painting and Photography," CN 24 [October 1908]:23-26).


51. "When the Lumière brothers published the description of their process, several years ago [1903], it was naturally duly recorded by the photographic press, and it even got into some of the big dailies—at least as padding; but those of us that were puttering along with the various three-color methods watched for results with much interest..." (Steichen, "Color Photography," p. 13).

52. Steichen, "Color Photography," pp. 14, 19. In his article Steichen made a substantial art historical error. He ascribed the "blueness of [Monet's] London series" to the predominant blue tone of Autochrome transparencies (which Steichen found objectionable and was trying to filter for). As Monet was in London in 1871 and 1872, he could not have been influenced by Autochromes. No work to my knowledge has been done on Impressionist painting and early color photography, which dates 2ème du Haurn's and Charles Cros’s discoveries of the late 1860s.

53. With Steichen's assistance, Stieglitz was to exhibit twenty Cézanne watercolors at his gallery in 1911. In early 1911, Steichen wrote Stieglitz to the effect that he could obtain some Cézanne watercolors and a group of fourteenth and fifteenth century Persian paintings. This offer did not constitute approbation or understanding, for Steichen added: "Now use your own judgement what you do with all this if anything....my god we can't become an insane asylum nor can we become a charity bazaar. If anything real real real turns up I don't think either of us will have any trouble recognizing it" (Steichen to Stieglitz, early 1911, quoted in Terry, "Photographic Antecedents," p. 272).

54. "[Steichen] remained a lyrical artist, devoted to nocturnal evocations of mood and decorative patterning. Toward the end of the first decade [of the twentieth century], he upgraded his palette...but his pictorial conception in this work is no more advanced than Gauguin and the Nabis" (Homer, "Eduard Steichen as Painter and Photographer," American Art Journal 6 [November 1974]:54).

Strangely enough, Caffin was quite taken with Steichen's painting of this period, calling it an advance beyond Whistler and "The New Thought" in painting in an article of 1910 (Caffin, "The Art of Eduard J. Steichen,"
CW no. 30 [April 1910]: 34). However, he was shortly to revise his view, placing Cézanne and Matisse in the vanguard of his "new thought" because of their simplification and abstract expression. Whereas Steichen came "out into the daylight and discover[ed] the spirit which hitherto had lurked only in the half lights and shadows of the penumbra of the soul," posing "the problem, not yet solved, of the New Thought in painting," (Ibid., p. 35), Caffin wrote, Cézanne's hues, instead of being decolorized or veiled with mists of obscurity [as Steichen's are], burn with the absorbed heat and the vitalizing glow of sunlight. No painter, since Paul Veronese, has excelled Cézanne in the clarity, the depth and fulness of his color schemes. Compared with his contemporaries and immediate predecessors, he has simplified color and in doing so has evoked more completely than they its abstract qualities of expression (Caffin, "The New Thought Which is Old," CW no. 31 [July 1910]: 23).


56. Ibid., pp. 4, 5.

57. Caffin reported on this experience in his article, "Henri Matisse and Isadora Duncan," published in Camera Work in January 1909.

58. Caffin, "The Camera Point of View in Painting and Photography," CW no. 24 (October 1908): 26. Caffin said nothing about a non-photographic way of painting, which Stieglitz was to seize as the clarion call of a new modernist aesthetic.


61. "When we came into the, what seemed to me, small galleries I saw what appeared to me at the time pieces of blank paper with a blotch of color here and there" (Norman, ed., "From the Writings and Conversations of Alfred Stieglitz," Twice a Year 1 [1938]: 80).

62. For a chronology of these important early exhibits, see Homer, American Avant-Garde, p. 296.
63. The best current studies are Homer, American Avant-Garde, and Kotynek.

64. Stieglitz, "Photo-Secession Notes," April 1910, p. 47.

65. Ibid.

66. Caffin, "Henri Matisse and Isadora Duncan," CW no. 25 (January 1909): 18. By 1911 his views had matured, however, because he then wrote that Matisse's modernity was predicated upon simplicity and organization, the very products of engineering and technology (Caffin, Story of French Painting, p. 211).


72. Ibid., p. 33.


75. Stieglitz, "Frilling and Autochromes," pp. 49-50, and Homer, Photo-Secession, p. 139.
CHAPTER TEN

"NOTHING MORE THAN AN...EXPERIMENTAL STATION"¹

The years 1908-10 witnessed the unfolding of a new scientific aesthetic in the Stieglitz circle. It emerged first in Camera Work and in the Little Galleries, which were moved to new quarters adjacent to the old ones and reopened in December 1908 as the "abstract" place "291,"² then it was more fully developed by Stieglitz himself in 1908-10 (Number 22 of Camera Work, dated April 1908, was the Autochrome number, and 1910 marked the taking and exhibiting of Stieglitz's New York harbor photographs).

Stieglitz wrote comparatively little at this time, compelled as he was to expend his energies on enlarging the parameters of his photography and the Photo-Secessionist enterprise. The interviews and brief statements he did publish demonstrate that he reentered the public realm with renewed vigor, and the exhibitions he sponsored and participated in demonstrate that this vigor had a decided and decisive structure.

Although the radical and experiential frameworks Stieglitz established in his gallery and the experiential and abstract notions he created in his work have been discussed, it is important to analyze also how the Photo-Secessionist "laboratory" functioned, particularly because, in the arenas of purportedly modern contemporary

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art movements, photographic aesthetics, and avant-garde European art, it had a crucial role to play. This retrospective chapter deals with that broader perspective, establishing how Stieglitz rapidly emerged as a leading generator, disseminator, and behind-the-scenes theoretician of modernism.

Establishing a Competitive Edge beyond the Mystique of Fine Art: Stieglitz-Sponsored Exhibitions, Experiments, and Criticism. January 1908-April 1910

In January 1908 the National Arts Club (the organization under whose auspices Stieglitz had mounted the first Photo-Secessionist exhibition in 1902) invited the Photo-Secession to submit works to what it termed a "Special Exhibition of Contemporary Art." This was to be a demonstration of new tendencies in art, including American Impressionism, the urban scene painting of Robert Henri, his circle and students, and salon photography. Of the Photo-Secessionists, Stieglitz, Steichen, White, and Keiley participated; other exhibitors included, besides Henri's group "The Eight," William Merrit Chase, Childe Hassam, and Henri's student Rockwell Kent.

To Stieglitz, who had determined that the work shown by members of his organization should hold its own in competition with the graphic arts,³ the review in the New York Times must have struck a responsive chord since
the *Times* critic stated:

...to those who have no axe to grind, who are not special for this or that man or clique, and who, therefore, are content to accept the expression of the spirit of modern times, in whatever guise it comes, so long as it remains personal, these canvases will carry a message that cannot be lightly turned away....A feature of the exhibition is the showing of photographs by the members of the Photo-Seccession on the same plane as paintings, which has never before been done in this country. That they are deserving of this recognition is amply proved by the manner in which these prints hold their own with the paintings and etchings shown.4

Recalling the event in his later years, Stieglitz said that he was impressed by the efforts of Henri and his associates because they "aroused the displeasure of powerful academicians."5

For nearly a year, Henri had been feuding with the conservative National Academy of Design, of which he was a leading member. The Academy’s spring 1907 exhibition caused that feud to move seriously toward rupture, as one of Henri’s three entries was demoted in rank, and as two paintings by colleagues—George Luks and Carl Sprinchorn—were hung, then removed without explanation. This event received extensive coverage in the New York newspapers, and Henri commented, "...my activity has riled some of the academicians who do not want to see my ideas succeed....People want to know if I am going to start a secession—a new society, etc., etc.—many quite worked up over it and desirous that it come about."6 It is likely that such activism captivated Stieglitz, who
was also eager to revolutionize public taste, although not within the halls of the academic establishment.

However pleased he was in theory about the National Arts Club exhibition, Stieglitz was not pleased about its aesthetic implications. Apparently, "the Ashcan School stole the show."7 Instead of contacting Henri to show work by the Eight in the Little Galleries, Stieglitz decided to let them go their own way, later stating:

When it came to a show-down, I could not see anything truly revolutionary or searching in their paintings. Their line, form and color seemed mediocre. Certainly they lacked freshness or a sense of touch. I could not feel committed to what was mere literature, just because it was labeled social realism.8

In his 1980 dissertation, Terry expressed doubts about the accuracy of this comment made by Stieglitz to Dorothy Norman, pointing out that at that time, "Stieglitz's aesthetics, at least insofar as they can be discerned from photography, still lay with the moody impressionism and the esoteric fin-de-siècle symbolism that characterized the pictorial movement." Thus, Terry implied, they were no more advanced than Henri's. Therefore, he continued, "The main importance of the exhibition as far as Secessionists were concerned was its offer of yet another opportunity to prove that photography was the artistic equal of painting."9

However concerned he was to advance artistic photography in the art world, Stieglitz's goals at this
time were not solely photo-political, as Terry averred, but they were also aesthetically radical. He wished to challenge Henri, Hassam, and other urban scene painters with work that was expressive not only of modern life, as theirs was (Fig. 22), but also of dynamic and abstract form, as theirs was not (Fig. 30). Moreover, considered as a sequel to his photograph The Steerage and to the abstract notions that color photography had germinated within him, Stieglitz's denunciation of Ashcan School realism does not seem inaccurate or even far-fetched.10

This view is further substantiated by the photographs and essay Stieglitz published in the January 1908 Camera Work. There, eight illustrations by Alvin Langdon Coburn were included, undoubtedly to demonstrate not only Coburn's skill in landscape and portraiture, but also (and more importantly) his development from ethereal mysticism to urban formalism.

For example, one of the illustrated pictures, The Bridge--Venice of 1906 (Fig. 72), is more symbolically evocative than formalist, a vision of interrelated light tones swimming in a "sea" of deep, imperturbable black (there is no firm demarcation between the darkest tones of the water and the shadowed buildings adjacent to it). Its closest analogues are The Bridge--Ipswich and Bridge--London (1903 and 1906, respectively), which had also been featured elsewhere in Camera Work. Notre Dame
(1906, published in *Camera Work* January 1908) is indebted both to Whistler and the Stieglitz of his early 1900s "secessionist" phase. All of these photographs manifest an apparitional quality of ambient and reflected light.\textsuperscript{11} *New York*, *The Rudder*, and *Spider Webs*, however (c. 1906-07, published January 1908), are artifacts of a new formalist vision.

In Coburn's *The Rudder* (Fig. 73), like Stieglitz's *The Steerage* (Fig. 2), structural components of a ship are framed within an abstract composition of interrelated forms, shapes, weights, and movements. In *New York* (Fig. 74), like Stieglitz's *Nearing Land* (Fig. 62), ships and harbor structures begin to trace diagonal, horizontal, and particularly vertical directional lines, echoed by silhouetted masts and skyscrapers. Compared with Stieglitz's own resolution of these formal issues in *The City Across the River* of 1910 (Fig. 65), however, Coburn's decidedly soft-focus effort still seems tentative.

Undoubtedly influenced by Stieglitz, Coburn moved from a dreamlike, Whistlerian interpretation to a more lucidly structural one (Fig. 75). Writing in 1910, he echoed the experimental, idealistic, and Machist tenets of Stieglitz (albeit in a romantic vein) by stating:

As I steamed up New York harbor the other day on the liner that brought me home from abroad I felt the kinship of the mind that could produce these magnifi-
cent Martian-like monsters, the suspension bridges, with that of the photographer of the new School. The one uses his brain to fashion a thing of steel girders, a spider's web of beauty to glisten in the sun, the other blends chemistry and optics with personality in such a way as to produce a lasting impression of a beautiful fragment of nature.¹²

In the same January 1908 issue of Camera Work where the Coburns appeared, the unsigned article, "Is Photography a New Art?" was published. This was possibly written by Hartmann, based on its reference to Edgar Allan Poe's essay "Eureka," which Hartmann not only knew, but used as the model for a symbolist drama Buddha.¹³ As well, there is an internal reference to Hartmann's 1903 article on the Flatiron Building.¹⁴

In "Is Photography a New Art?" the author proposed that photography, like the other fine arts, should be a matter of intellectual conceptions realized through individual temperaments and tactile sensibilities. Like art, it should involve composition which "differs...from a scientific statement, in that it is not a matter of facts which can be stated in any way, and in any order, without destroying their truth; but it is a series of facts whose truth is purely dependent upon their special juxtaposition."¹⁵

Despite the fact that the unnamed author erroneously assessed the nature of scientific hypotheses (as Poincaré would aver, they are indeed dependent upon interrelationships or special juxtapositions¹⁶), Hartmann
(if it were he) did evince an understanding of and propose a value for neo-romantic scientific philosophies. This is shown in the statement in "New Art" that photography and the other arts could be considered scientific because they utilized mathematical symbols in a fictional or creative way. Both photographic and non-photographic art, it was suggested, were artifacts of the constructive, mathematical conceptualizer, a man who wielded ratios and geometrical forms with a passion equivalent to making love. "As a necessary corollary," the author concluded, "photography can not be pictorial, any more than can music or oratory. Photography is photography, neither more nor less."

Unquestionably, the January 1908 issue of Camera Work was meant to initiate a new, scientifically-derived aesthetic of photography and urban art quite different from Henri's and, by extension, to illustrate and thereby validate the new philosophy of the Photo-Secessation. It should also be kept in mind that Stieglitz's January 1908 Little Galleries exhibition—fifty-eight "minimalist" watercolors by Auguste Rodin—represented his first major sponsorship of European modernism.

The April number of Camera Work featured Steichen's article "Color Photography" and its only reproductions were of Steichen's Autochrome plates (Stieglitz apologized for their poor color, claiming they were "first
attempts"^20). In addition, reviews dealing with the Rodin show were included. The result was a curious amalgam of editorial and illustrative material, with the Autochromes presented as important scientific milestones for photography, and the Rodins presented as "irritants" for a puritanical art audience.^21

As any visitor to the Little Galleries would have discovered, Rodin's watercolors were actually quite delicate, comprising searching contour lines washed in luminous pastel hues. Steichen, in fact, was photographing nudes in a similar manner in 1906. What differentiated the Rodins was their frank acknowledgment of the sexual aspect of nudity; the sculptor's models face the viewer without shame (Fig. 76), while Steichen's turn away, covering their faces and breasts (Fig. 77).

To the puritanical American of that day, Rodin's works must have appeared outrageous, if not downright blasphemous. Yet this is precisely what Stieglitz wanted to happen, believing that since color photography had wiped out the efficacy of "former visions,"^22 new visions could now arise and in Stieglitz's mind, this meant going back to primary forms. Rodin's graphic style perfectly illustrates Stieglitz's new vision: comprised of a single nude rendered in line and wash, without props, background or even shadows, each Rodin drawing functions as a cipher of movement.^23
As has been suggested, several years elapsed between Stieglitz's initiation into modernism and his wholehearted acceptance of it. (For example, it was not until late 1910 that he fully understood Rodin's art, discussed in more detail below.) From 1907 to 1910 Stieglitz relied primarily on the provocative format of his exhibitions, the provocative nature of Camera Work, and the ideas of his critics to keep the initial momentum going.

Concurrently, however, he was actively reevaluating the aesthetics of pictorialism. In 1907 he hoped that what the daguerreotype had done to advance black-and-white photography, the Autochrome process would do for color photography.24 His reevaluation of photographic aesthetics resulted in a significantly more modernist ratio, one which although Stieglitz never stated it, he continually enacted: "secessionist" photography is to Symbolist painting as conceptual (abstractly conceived) photography is to the art of primary, mathematical form.

Although this reevaluation culminated in The Steerage, it actually began late in 1907, when Stieglitz undertook a collaborative photographic experiment with Clarence White: the shooting of a series of black-and-white fully frontal figure studies of two models in semi-diffused, "pictorialist" light, then the printing of these plates with a variety of retouching and signing
techniques. During the course of their work, Stieglitz and White also experimented with different semicorrected (diffused focus) lenses.

Although no article was ever published about this venture—named the Cramer-Thompson series after the models—it is clear that Stieglitz and White undertook it to study the mystique of fine art photography, with Stieglitz directing the models' poses and White handling the camera and making most of the prints.

First, they draped one of the models in a long, white gown and posed her with a transparent glass globe in the White "manner." (Fig. 78). Then, in order to strip the nude of false modesty and re-present it as a Rodin-influenced sexual being, they shot both models frontally (Fig. 79), at times ironically juxtaposing them with Symbolist accouterments, such as an elegant, Whistlerian vase. As if to cap off such blasphemy, they executed these nudes collaboratively, thus eliminating any suspicion of personal involvement or emotion. When these photos were printed in the July 1909 Camera Work, Stieglitz merely numbered them, calling them "Experiments."26

The Cramer-Thompson series seems to have been conceived and executed not only in the spirit of camaraderie and collaborative experimentation, but also of pointed questioning. Whereas for White it appears to
have been merely a stopping point on the quiescent, soft-focus route he had earlier established and would continue to explore, Stieglitz undoubtedly saw it as a studied critique of pictorialist poetics and in a personal sense as the seed of a new "direct" series premised on female sexuality. This idea would not come to fruition, however, until a decade later in the series of nudes he began with a new model, his future second wife the artist Georgia O'Keeffe (Fig. 80).

In 1908, 1909, and 1910 Alfred Stieglitz continued to feature "secessionist" photography, both in his exhibitions at "291" and in Camera Work. But he did so in order to pit photographers of the old, Symbolist school against a new school philosophically attuned to his modernist ideas. In keeping with his stated policy to feature all work that evidenced original thought, he did not abandon the Symbolist photographers, but placed their work in binary opposition to the modernists. (The dénouement of this strategic juxtaposition occurred in 1912, as discussed below.)

In October 1908 Stieglitz published what might be termed a Symbolist retrospective, consisting of a series of interviews on this type of photography with various French artists and critics. This may have been prompted by events of earlier that year when Stieglitz, along with White, Coburn, Frank Eugene, Kühn, and Baron Adolf
de Meyer, resigned from the by then conservative Linked Ring after protests were lodged against the jurying of that year's Salon. (Steichen, Coburn, and Eugene were among the jurors, and more than half of the accepted works were by Americans.)

According to Beaumont Newhall, this massive resignation had an aesthetic as well as a political basis; Steichen's, Coburn's, and de Meyer's work (not to mention Stieglitz's) "pointed in directions opposed to the quiet passivity of the now accepted impressionistic pictorial style"\(^{29}\) associated with the Linked Ring.

Eager to feature this new aesthetic, Stieglitz gave both Coburn and de Meyer one-man shows at the Little Galleries in January and February 1908 respectively, and printed their photographs in *Camera Work* (de Meyer's appeared in the same issue as the interviews with prominent amateurs).

Coburn's and Steichen's experiments of this period have already been noted, although the latter's seem to have been more technically than aesthetically motivated. De Meyer is a figure of at least equal interest.

A specialist in still lifes and portraiture, de Meyer exploited the tendency of soft focus lenses to make highlights more brilliant than they appear in nature, "as if they projected rather than reflected the incident light."\(^{30}\) Placing his still life arrangements in glass
receptacles and positioning them on highly reflective, polished surfaces (including transparent glass tables), he was able to obtain strikingly abstract effects with minimal means (Fig. 81). Stieglitz exhibited de Meyer’s work again in January 1912; by then the latter was working in Autochrome as well, and simplifying his compositions to related shapes and forms. In Stieglitz’s view, de Meyer was a “purist.”

In January 1909 the journal Photographic Topics published a brief but highly uncharacteristic piece by Stieglitz, entitled “Twelve Random Don’ts.” Not averse to publishing photographic maxims by others, Stieglitz never had come forth with pat formulas of his own, believing “that a formulated theory is a narrowing thing, lacking in that perfect freedom which we are looking for.” This article, however, was a formulary piece dedicated to the anti-formulary. For example, the first “Don’t” read:

Don’t believe you must be a pictorial photographer. The world sorely needs more scientific and some first-class commercial photographers. Possibly your talents lie in that direction. Bad pictorial photography, like bad “art painting,” is a crime.

“Don’t worry about innumerable formulae,” the second admonition began, ending with the warning that worrying about applying the solutions reached by others would detract from what was really necessary: experimentation
with a few tried and true processes in the darkroom. The third was the *pièce de résistance*:

Don’t let the wiseacres lead you into believing that fuzziness, gum, varnish and Japan tissue are the secret paths which lead into the charmed circle of the Photo-Secession.34

As vividly demonstrated in this maxim, Alfred Stieglitz had begun to believe that pictorialist ideas determined the validity of pictorialist aesthetics, and that the art of the old school (White’s and Gertrude Käsebier’s, for example35), despite its beauty, just might be moribund. He demonstrated in "291" the same month this article appeared a corollary to this attitude: the belief that pictorialism needed a real "irritant." To achieve this Stieglitz mounted an exhibition of caricatures by Marius de Zayas.

De Zayas, a newspaper cartoonist, writer, and political exile, had emigrated to New York from Mexico with his family in 1907. J. Nilssen Laurvik, a critic in tune with Stieglitz's ideas, knew de Zayas and must have been familiar with the political cartoons he drew for the *New York Evening World*. As Laurvik was also interested in "artistic abstractions,"36 de Zayas's reductive, planar, and geometrically conceived cartoons may have prompted the suggestion that Stieglitz visit the Mexican's studio. Sometime before January 1909, Stieglitz arrived at de Zayas's residence, unannounced.
According to Rodrigo de Zayas, Marius's son:

[My father] was in his workroom, in his studio. Stieglitz walked in. He didn't even say "Hello." He looked at the works, and said, "Do you want to show these?" And my father answered, "No." That was the first contact. And I think Stieglitz said something to the effect that [he would] show them anyway. And my father gave his works away to Stieglitz. 37

Although no additional information about this initial meeting exists, it is clear that Stieglitz was immediately and favorably impressed by de Zayas's cartoons, not only because they were stylistically sophisticated (de Zayas synthesized elements from current caricaturists' styles), but also because they manifested originality 38 and a fascination with algebra and geometry--subjects in which Stieglitz also excelled (Figs. 82 and 83).

Furthermore, de Zayas's caricatures were as concerned with shape and tone as Stieglitz's own synthesis of photography and modern art (at least that of Rodin and Matisse, being shown in "291" at this time) was concerned with shape, tone, and color. In addition, some of de Zayas's caricatures looked like Symbolist portrait photographs, replete with their affective emotional accouterments (Fig. 84). Stieglitz must have found that ratio extremely amusing, for he arranged a joint January 1909 showing of these caricatures with Laurvik's Autochrome transparencies. 39

After de Zayas became a "291" regular, he created
his magnum opus, a stage set called "Up and Down Fifth Avenue," peopled with caricatures of about sixty New York notables. Stieglitz put this installation on view for seven months in 1910 and it drew huge crowds. Hartmann, writing while "Up and Down Fifth Avenue" was in the gallery, specified its appeal as both an unconventional art form and a new idea in abstraction:

His style is direct, brief, strict, hard. His ideas are realistic, huge, grim, vulgar, common at times and yet always unforeseen, so modern they are. It is a kind of calligraphy, not unlike the signs of Japanese syllables, lean and black, decorative and mystifying, that have a meaning even to those who do not understand the language (italics mine).40

To complement this showing, de Zayas designed an advertisement for the April 1910 Camera Work, featuring Stieglitz as a firebrand electrified by and transmitting the shock of the new (Fig. 85). Considering Stieglitz abstract to the hilt, de Zayas transformed him into a wiry "S"-curve which culminates at one end in a shock of bristles (ciphers for hair), and at the other end in a black sweep of the brush (Stieglitz's shoes).

This transformation would not have been lost on Stieglitz's stable of "old school" photographers, whose styles complemented de Zayas's early Stieglitz caricatures (Figs. 84 and 55), but appeared hackneyed and tired seen in conjunction with this new, "direct" interpretation.

Beginning in October of 1910, when de Zayas left
New York for a year in Europe, Stieglitz tagged him to be his Paris correspondent and consultant. (Eventually de Zayas was to replace Steichen, whose excellent gallery connections ultimately could not make up for his unwillingness to accept modernism.) In this capacity de Zayas was instrumental in arranging Picasso's first one-man show in America, held at "291" in April 1911, and de Zayas's writing began to monopolize the editorial pages of Camera Work by the end of 1912 and through 1913.

The scope of this dissertation does not permit a detailed study of de Zayas's theoretical writings, which are early and seminal attempts to understand the sources and meanings of modern European art. However, a perusal of his articles, essays, and unpublished drafts reveals a singularly important point: whereas both he and Stieglitz were interested in science and experimental inquiry, and whereas de Zayas was Stieglitz's major conduit for Cubist and primitivist art theory, Stieglitz was de Zayas's source for scientifically modernist ideas which could be related to art. Stieglitz's greatest influence occurred in 1909-10, when, stimulated by the scientific and abstract experiments he was then pursuing and promoting in his photography, he began his attempt to establish Photo-Secessionist aesthetics on a level of discourse equal to that of avant-garde European art and the most advanced scientific thought.41
Science and Hypothesis: Stieglitz, Photography, and Modern European Art. April 1910-April 1911

By the spring of 1910, all components of the Stieglitz experimental venture were in place. Exhibitions at "291" interrelated with one another in the spirit of hypothesis formation, demonstration, and confirmation. Critics and theorists jockeyed to have their speculations confirmed in a spirit of healthy rivalry. Pictorial photographers were being admonished to "follow...the modern evolution of other media," not "watch...eternally their own bellies like the fakirs of India." Marius de Zayas was commissioned to report on the avant-garde front in Paris. The Little Galleries, renamed by Stieglitz and his circle "291" to signify not only an address but a graphic code for mathematical simplicity, were now being publicized widely as a laboratory or experimental station. Alfred Stieglitz was haunting the New York harbors again, now capturing interrelationships of form and motion, as well as compressed energy, on his film. And Stieglitz was telling his visitors, "Every one [is] left to his own resources."

There is no doubt that, by 1910, the spirit of "291" was one of Science and Hypothesis and that this continued until the gallery's demise in 1917. Then why should this investigation of this correlation end here? For Stieglitz, the events of 1910 were prophetic of a new
focus for Photo-Secessionism, one he rapidly formulated late the following year while visiting various art galleries in Paris with Steichen and de Zayas. In December 1911 he wrote to Hartmann:

...my experiences were most unusual and I think they come at the psychological moment. Paris made me realize what the seven years at "291" had really done for me— all my work, all my many and nasty experiences had all helped add to prepare me for the tremendous experience....

This tremendous experience was, of course, the radical break with academic tradition represented by modern French painting and sculpture.

As has been documented extensively by other scholars, the years 1911-17 witnessed the flowering of a new pictorialist aesthetic. Defined by Stieglitz, it was not limited to modern painting and sculpture, but was premised on linking avant-garde painting and sculpture (by artists such as Matisse, Picasso, Braque, and Brancusi) in an equation with advanced modern photography (the "Cubist" compositions of his newest protégé Paul Strand and Stieglitz himself). As first he himself in 1911 (Fig. 86), then Strand in 1914-16 (Fig. 87) proceeded to condense photography to the direct description of form and energy, Stieglitz became convinced that photography should be both a collaborator with and foil for modern painting, also premised on individual, formalist expression.
Put to the test were two notions Stieglitz had continued to question, but had not as yet discarded: that the technological mission of photography was accurate reproduction (this was Vogel's view and it had colored Stieglitz's appreciation of Steichen's accomplishments in Autochrome), and that the artistic mission of photography was emotive, but static creation (although he ceased showing Symbolist photography at "291" in 1911, it continued to appear in Camera Work).

According to Stieglitz's amended view, these were the characteristics of a photographic attitude, but "photography" had seceded from it.\textsuperscript{50} Seen in this dialectical sense, photography and painting could both be termed "photographic," in the expanded sense of the term.

Stieglitz's new term "anti-photographic" (coined in 1912 but traceable to 1908)\textsuperscript{51} was not meant to characterize non-photographic mediums,\textsuperscript{52} but rather the spirit of revolt that photography had initiated and that now had been transformed into a new synthesis shared by photography and painting. As Stieglitz wrote to George Pratt in 1912:

But as I once told you, that before the people at large, and for that matter the artists themselves, understand what photography really means, as I understand that term, it is essential for them to be taught the real meaning of art....With me it is not a question of personal likes and dislikes; not a question of theory; I approach the subject in a scientific way, objectively, impersonally....men like Matisse and Picasso and a few others are giants.
Their vision is antiphotographic....It is this antiphotography in their mental attitude and in their work that I am using in order to emphasise the meaning of photography (italics mine).\textsuperscript{53}

Later he clarified this process in letters to Bayley:

The meaning of photography as a medium of expression is finally getting its place....

Of course back of this so-called "Photographic Fight" of mine, there is something much bigger than appears on the surface of things, just as "Camera Work" meant always more than just photographs, photographers, or photography to me. [It is] the idea photography, its place....\textsuperscript{54}

As clearly indicated in his statements of 1912 and 1913\textsuperscript{55} (and implied in his presentation of artists and ideas from 1908 to 1912), Stieglitz had come to believe that artistic radicalism resulted from a continuous dialectical process, the actualization and transformation of photography (thesis) and anti-photography (antithesis) into a new synthesis, "idea photography." This would constitute the most radical experiential matrix of the entire Photo-Secessionist enterprise.\textsuperscript{56}

Notwithstanding the importance of these later developments to Stieglitz and to photographic aesthetics,\textsuperscript{57} it is valid to close this inquiry in 1910--to be more accurate, at the close of the 1910-11 season of "291"--because those months marked not only a watershed, but a high water mark of Stieglitz's experimentalism that other writers have not sufficiently
acknowledged. A review of key events at "291" and an important exhibition at another gallery show why and how this was so.

In their studies of the Photo-Secession, both William Homer and Robert Doty devote considerable space to the International Exhibition of Pictorial Photography held at the Albright Art Gallery in Buffalo in 1910.\(^5\) Organized by that gallery in conjunction with a Photo-Secessionist jury (composed of Caffin, Stieglitz, White, and Max Weber), this show claimed Stieglitz's attention for more than a year (explaining why he did not make many photographs at this time). When it opened on November 4, 1910, nearly 600 prints were hung in eight rooms of the Buffalo gallery; the show, which remained on view through the month, drew 15,000 visitors.

In the catalog it was claimed that this mammoth photography exhibition was "something more thorough and definite than ever has been attempted heretofore in any previous exhibition, either in America or abroad.\(^5\) Critics at that time and since (including Homer and Doty) have interpreted this as signifying the final codification of the Photo-Secessionist aim, which was to establish pictorial photography on a plane equal to that of painting and the graphic arts. Finally, American photographers were given the imprimatur to show their work and trace its history, all together in one reputable
gallery.80

Parity with "high art" was not really the only aim of the Photo-Secession, as this study has shown. The desire of the Photo-Secession was not simply to prove the artistic worth of pictorial photography (although that was a major part of it), but to involve both the public and its members in an aesthetic laboratory where experiments concerning photographic imagery, technique, and polemics were continuously being conducted. The Buffalo exhibition was an expanded manifestation of this concept.

The historical component of the show was meant not to sum up or encapsulate the pictorial photography movement, but to illustrate the experiments, achievements, and achievers of the present by means of those of the past. This view of cultural history was sanctioned by scientific historians such as Mach and Josef Eder; undoubtedly however, it was Stieglitz's own. He illustrated it in one room where early straight photographs by David Octavius Hill (a representative example is Fig. 88, done in collaboration with Robert Adamson) were juxtaposed with his own, including the recent "snapshots" of New York City.

Furthermore, Weber's installation, although extremely effective, was not engineered to call attention to the photographs as precious works of art, but to highlight them as exemplars of the best current photogra-
phers had to offer, with "no excuse or apology."\^[1] Indeed, the closest analogue to Weber's installation scheme at the Albright--a band or tapestry of works spanning the perimeter of the rooms and tracing a path from one room to another--was the laboratory/gallery "291" itself, the design of which Stieglitz had created and (in his current capacity as gallery assistant) Weber was continuing to refine (Figs. 89 and 90).\^[2]

Thus, to Stieglitz and his colleagues the Albright Exhibition was not really a retrospective, but yet another in its continuing series of demonstrations, a process-oriented organic entity rather than a fait accompli. As juror Charles Caffin (an important source for this idea) explained, "...the excellence of the hanging...created the illusion of an organic unity....I have never seen an arrangement more generally persuasive and at the same time better calculated to emphasize the individuality of the component parts." By "individuality," Caffin meant technical versatility, strength of conception and depth of feeling, but each "point of view" was valid for him only insofar as it could be "compared with those of others."\^[3]

Equally importantly, the International Exhibition at Buffalo signified the expansion of Stieglitz's recent change of focus from emotively manipulative Symbolism to direct description. Thinking of its installation in a
Harper's Weekly review, Coburn (who himself had only recently made this breakthrough) admired "the pictures as the spots of a pattern against the background." He then went on to describe those of the "best workers" as simple, direct, and free sensations, "giving us the liquid quality of water, the delicate beauty of clouds, and the subtly seen and rendered expression in portraiture...."84 In comments for Camera Work, Caffin pointed out that "form in its structural and plastic capacity" was the as yet little explored but fertile territory looming just over the horizon.85

In sounding this salvo, Caffin was probably thinking not only of Stieglitz's latest achievements in photography, but also of his entrepreneurial and editorial achievements. For during the same period that he was mounting the Buffalo show, Alfred Stieglitz was also preparing two seminal issues of Camera Work (the first in which examples of modern art were reproduced) and two major exhibitions for "291." These demonstrated the same concerns in a fine art context as were brought forward in Buffalo in a photography context.

In the October 1910 issue of Camera Work, Stieglitz reproduced two drawings by Matisse, and in the April/July 1911 issue, he featured Rodin's late graphic work. Significantly, the latter was published concurrently with the March 1911 show of Cézanne's watercolors and the
March-April 1911 show of Picasso's watercolors and drawings, both held at "291." Could Stieglitz have intentionally designed these editorial and curatorial\textsuperscript{68} ventures as a single structural unit intended to function within the organic context of his aesthetic laboratory? Indeed, might not this grouping of illustrations and exhibitions be interpreted sequentially, as stages toward direct description? This hypothesis is dependent on two factors: that Stieglitz knew he would have these particular paintings and drawings by the fall of 1910, and that he designed issues of \textit{Camera Work} to relate to one another thematically and illustratively.

The first is partially documented in Stieglitz's July 1910 announcement of the upcoming "291" season and in his October announcement that a Rodin issue of \textit{Camera Work} was in the final planning stages.\textsuperscript{67} With regard to the second factor, oral and documentary evidence confirms that each issue of \textit{Camera Work} was designed--visually and conceptually--as a unit, even if it did not revolve specifically around one artist (such as Rodin or Coburn).\textsuperscript{68} Later in 1915, Stieglitz explained to Hollie Elizabeth Wilson, "I can say that nothing but the best, the essential, is contained in any of the Numbers of 'Camera Work'...There is a relationship between all the Numbers, running through the whole set of 'Camera Work', [and] there is a very positive idea expressed and
evolved." Although Stieglitz wrote this comment with the benefit of hindsight (Camera Work ceased publication in 1916), all evidence points to the fact that he had thematic interrelationships and a "positive idea" about art in mind throughout the years he was publishing this journal and operating his gallery. This is demonstrated in the 1910-11 issues of Camera Work and the 1910-11 season of "291."

The two Matisse drawings reproduced as photogravures in the October 1910 Camera Work are monochromatic figure studies, stylistically akin to the artist's paintings and drawings of c. 1900-03 (Fig. 91). Heavily and repeatedly outlined, they manifest a searching process by the artist characterized by John Elderfield as drawing of the form from life, followed by rapid revision and correction which transformed the life of the pose into the ideated life of the artist's conception. In his analysis of Matisse's methods, Elderfield was actually paraphrasing the painter's revealing statement of 1908:

I want to reach that state of condensation of sensations which makes a painting. I might be satisfied with a work done in one sitting, but I would soon tire of it; therefore, I prefer to rework it so that later I may recognize it as representative of my state of mind.

In both Stieglitz's and Machist terms, it might be said that Matisse, having described the model indirectly
(by finding linear analogues to pose and contrapposto), moved toward, but not all the way to direct description by searching for more cogent linear analogues to both his own and the model's physical sensations.

Viewing Matisse's pre-1910 works, Stieglitz felt they expressed "power," "sanity," and what he termed a nearly mathematical attitude about form. He also admired Matisse's unconventional ideas, which he saw as the result of an anarchic view of art. In light of the instrumentalist and dialectical definitions of his own anarchism proposed earlier in this study, it is possible to interpret this latter statement by Stieglitz as an endorsement of Matisse's searching line, because it became for him a cogent formal analogue of concepts forever in process and in flux.

Stieglitz printed his statement about Matisse's anarchy as part of the foreword to a 1908 "Photo-Secession and the Press" column in which he also incorporated widely diverging views about "291's" first (April 1908) Matisse show. Equally significantly, he published articles by Hartmann and Benjamin de Casseres, the two most radical critics of his circle at this time, in the October 1910 (Matisse) issue of Camera Work. Not formalist essays per se, these eye-opening tirades against puritanism also initiated a subtext on form that Stieglitz was to serialize, pairing the progressively more abstract
dialogues of these two writers from October 1910 through January 1912.73

Similar evaluations can be and were made of Rodin's drawings; photogravures of nine of these images were reproduced in the April-July 1911 issue of Camera Work.

Like Matisse's drawings of c. 1900-03 reproduced two issues earlier, these watercolors manifest process thinking, not conventionally finished products—Rodin considered them merely études (Fig. 76).74 Also as Matisse did in his drawings, Rodin moved in these works toward the direct description of sensation. The thrusting of a torso, pivoting of a hip, and pressure of a heel are rendered in multiple linear passages and translucent washes, keyed to his vision of weighted physical grace (Fig. 92). "...The greatest difficulty and the apex of art is to draw, to paint, to write with naturalness and simplicity," Rodin told Paul Gsell in 1906-07.75

Related concerns were brought up in Arthur Symons's essay, reprinted in the April-July 1911 Camera Work (it had first appeared there in 1908 on the occasion of Rodin's initial "291" show). Rodin's shivering, sensuous drawings, Symons explained, "speak another language than the drawings of a painter, searching, as they do, for the points that catch the light along a line, for the curves that indicate contour tangibly....here, in these short-hand notes of a sculptor, one's fingers seem actually to
touch marble.\textsuperscript{76}

Stieglitz echoed Symons by stating:

...only by a constant use of his medium and a constant attention to the elimination of unnecessary details could the artist have attained the power of expressing himself so completely with such economy in the use of lines, the limit of successful artistic simplification.\textsuperscript{77}

Although he was ready to feature Rodin's watercolors in \textit{Camera Work} as early as 1910 (he had not fully formulated his ideas about the sculptor's graphic work when he showed the latter's watercolors in 1908), Stieglitz waited to publish the Rodin issue until he knew for sure that Steichen had secured twenty watercolors by Cézanne for "291." (This occurred in January of 1911.)

Dorothy Norman has told the story of Stieglitz's second encounter with the work of Cézanne\textsuperscript{78} (his first had been with Steichen in 1907), and Stieglitz also briefly described this event in \textit{Camera Work}. There, in a few sentences, he told how the French painter's sureness, directness of vision, and tactile sensibilities--that is, his sensations--were quickly revealed as abstract sensations.\textsuperscript{79}

Due to a recent study by John Rewald, the actual watercolors Steichen sent to Stieglitz can be identified.\textsuperscript{80} Dating primarily to the period c. 1885-90, they are transitional works, not as particular, weighted, or identifiable as the early watercolors, and not as
ethereal or proto-abstract as the later ones. Nonetheless, works such as *Trees and Rocks* (c. 1890, Fig. 93) are fully realized, interrelational "diagrams" of sensation, constructed around and through linear armatures. More sculptural than the Rodin drawings and more abstract than those by Matisse, Cézanne's watercolors confirm what Elderfield has termed the "centrality of edge" of the former and the "hollowing, but background enclosure of fictive space" of the latter.81

That Stieglitz understood these qualities and considered them not only revolutionary, but essential to an understanding of modern thought is shown in his decision to give Max Weber, an avowed follower of Cézanne, his own long-awaited show in January 1911. This was clearly intended as an "introduction" to the works of the great French master, and Stieglitz enumerated in *Camera Work* the qualities these two artists shared: an analysis of form into constituent parts, the interrelation-ship of form and line, and a geometric ordering of space.82 Judging by the maturity of this analysis, it is tempting to speculate that by then Stieglitz might have read Cézanne's own theory of direct description, transcribed by Claude Bernard in the July 1904 issue of *L'Occident*:

...the painter, by means of drawing and color, gives substance to his sensations, his perceptions. One is neither too scrupulous, too sincere, nor too submis-
sive before nature; but one is more or less master of his model, and above all of his means of expression. One must penetrate what lies before him, and strive to express himself as logically as possible.83

He may also have read Roger Fry's equally pertinent evaluations of Post-Impressionism, published in January 1910:

A new ambition, [and] a new conception of the purpose and methods of painting, are gradually emerging; a new hope too, and a new courage to attempt in painting that direct expression of imagined status [sic] of consciousness which has for long been relegated to music and poetry (italics mine).84

Notwithstanding the availability of these written statements to Stieglitz, his Machist education and philosophy alone would have predisposed him to evaluate Cézanne in these terms, and to situate Cézanne's work in the "logical development" of modern art from healthy irresolution and the indirect description of sensation (the late drawings of Rodin and early ones of Matisse), to abstract resolution and direct description (these mid-career drawings of Cézanne).

This must be why he published the Rodin issue of Camera Work at the same time as he exhibited the Cézanne drawings. He reinforced the connection by printing another "double feature" by Hartmann and de Casseres, now sparring on Rodin's primary form and creative instinct, followed by an article by Caffin on Cézanne's geometry.85 And this must be why immediately after the Cézanne exhibition closed, "291" featured a one-man show of the
works of Picasso. Stieglitz believed (quite rightly) that Picasso's current art was at the apex of that development because it was "breaking virgin ground." 88

Assessing the 1911 Picasso exhibition held at "291" is problematic, because only one drawing shown there has so far been securely identified, a Nude of 1910 (Fig. 94), which Stieglitz bought. Recalling his visit to the artist's studio at the Boulevard de Clichy in late 1910, de Zayas, one of the exhibition's organizers, stated:

The proposed exhibition was to be of drawings only, and for their selection a real "jury" was composed by Picasso himself, Steichen, Frank Burty [the critic] and myself, who most conscientiously performed our duties. Picasso brought out all the latest drawings he had, and there were many. I don't remember how many we took, but certainly enough to fill the Little Gallery, and you can be sure they were the best Picasso had done up to that time. The drawings were "cubistic," needless to say. 87

Judging by other paintings by Picasso dating to 1910 and by the documentary photographs which show the paintings that Picasso then had on his studio wall, it would appear that de Zayas, Haviland, and Burty must have selected drawings which elucidated his "simultaneous" phase of Cubism. The term "simultaneity painting" currently in vogue in Paris literally meant the depiction of figures or objects from various viewpoints, combining the disparate forms into one image; Stieglitz's Picasso Nude shows this process clearly.

As noted earlier, "simultaneity" also had another
meaning in French intellectual circles at this time, signifying the capture and rendering of contemporary dynamism, whether it be a moving figure, a speeding automobile or modern communication system. For the French critic Guillaume Apollinaire, simultaneity also signified the direct description of dynamic elements, in Picasso’s case arcs, angles, and perpendicular lines. Writing in 1913 about the latter’s work Apollinaire stated, “These elements take on the appearance of the object, not because of the effort of the viewers, who necessarily perceive their simultaneity, but because of their very arrangement on the canvas."88

Alfred Stieglitz wrote very little about the Picasso show he mounted at "291" in 1911; he essentially referred readers to de Zayas’s essay distributed during the exhibition, then published in the April-July Camera Work (the same issue featuring Rodin’s watercolors, Hartmann and de Casseres’s essays on Rodin, and Caffin’s on Cézanne).89

De Zayas’s essay was substantially influenced by the ideas of lesser Cubists Jean Metzinger and Albert Gleizes, whose writings (themselves indebted to Picasso) had introduced de Zayas to Cubist theory. Portions of it do appear to contain edited transcriptions of Picasso’s own unmediated ideas, directly descriptive to the hilt. Later de Zayas excerpted these ideas, stating:
My article did not please a certain Irish editorialist of the New York Sun....what aroused him most was what I said about Picasso's ideas on perspective: "Picasso has a different conception of perspective from that in use by traditionalists. According to his way of thinking and painting, form must be represented in its intrinsic value, and not in relation to other objects....In his paintings perspective does not exist; in them there are nothing but harmonies suggested by form, and registers which succeed themselves, to compose a general harmony which fills the rectangle that constitutes the picture" (italics mine).  

Moving beyond the prototype of Cézanne, who had reduced natural form to organic structures of lines and shaded planar elements so that they could be interpreted both naturalistically and abstractly, Picasso was reducing natural form to linear and planar configurations (the latter graded from light to dark, in debt to Cézanne's passage). These configurations now read primarily as abstract forms and relations of forms, as seen in the series of figure studies which included the Nude shown at "291" (Fig. 95).

"[Picasso] receives a direct impression from external nature, he analyzes, develops, and translates it, and afterwards executes it in his own particular style," de Zayas reported.  

Fully cognizant of Picasso's radicalism, Stieglitz undoubtedly related Picasso's direct descriptions, abstractions, and dynamic formal interrelationships to his own scientifically-premised views on these subjects, just as he had with Cézanne, Rodin, and Matisse (the
latter two of whom he gauged less avant-garde based on the aesthetic of indirect description). As opposed to merely basing his new ideas on second-hand reports by friends such as de Zayas and Steichen, Stieglitz proceeded to accept modernist French art on his own terms, which although based on the philosophy of science, also accurately described modernist aesthetics.\textsuperscript{92}

Clearly, Alfred Stieglitz also began to evaluate his own work, both in the international art world and in photography, with renewed vigor at this time. An inveterate experimenter, in the years around 1910 he produced his most Cubist compositions: condensing figures and the interstices between them to discrete tonal elements, he interrelated them within fluid, continuous envelopes of space and across the picture plane (Figs. 86 and 96).\textsuperscript{93} The even more dynamic, flexed spaces of his New York harbor photographs (Fig. 66) prefigure Russian Constructivism.

The corollary to this achievement, recognized and seconded in the work of Coburn, de Zayas, and Strand, was the end of the hegemony of Symbolist photography. Agnes Ernst Meyer may have had this in mind when she stated:

\begin{quote}
Heaven lies about us here, and right or wrong, successful or not, one thing at least is certain--when all sides of the question have been weighed, it must remain the deeper faith, the greater glory, to take the world as it is and find the eternal in it, than to seek for our realities in some fictitious atmosphere born of the imagination.\textsuperscript{94}
\end{quote}
It comes as no surprise that Stieglitz chose to include Meyer's comments (actually written in response to Rodin's art) in Camera Work no. 34/35 (April-July 1911), the most polemically oriented and aesthetically radical number of that journal yet to have issued from his editorial offices.95

If the years 1911-13 are to be considered the halcyon years of Stieglitz-sponsored modernism, then the preceding decade--particularly the half-decade 1905-10--must be considered an equally important time of preparation and accomplishment. By linking the domain of avant-garde science to the domain of art, Alfred Stieglitz sustained a revolution, his singular contribution to the annals of modernism.
NOTES

1. Stieglitz, "Photo-Secession Notes," CW no. 30 (April 1910): 47. There is a distinct possibility that this well known portion of the "Notes" was written not by Stieglitz, but by one of his associates who was not a scientist, because "experimental station" appears to be confused with "experiment station." Stieglitz considered the Photo-Secession an experimental venture, but it is more accurate to say that he believed the group was administering an "experiment station," a place where experiments were carried out under specific conditions determined by experimenters (Stieglitz, his writers, and his exhibiting artists).

2. To my knowledge, no other Stieglitz scholars have equated the name "291," ostensibly chosen to maintain the familiarity of the former gallery location (the new one was actually at 293 Fifth Avenue), with a new abstract and mathematical aesthetic. As Stieglitz gave no explanation of the name change (gallery visitors were still greeted with the name "Photo-Secession" at the entrance), it appears that this signified the aesthetic laboratory created by him and his colleagues. Stieglitz was loathe to explain the art he showed; his preference was to guide viewers by asking them questions. Perhaps the name "291" was geared to provoke the first question!

3. When, late in 1906, an unknown graphic artist and watercolorist Pamela Colman Smith came to the Little Galleries with a portfolio of drawings stylistically indebted to German symbolist painting, as well as to French and English poster design, Japanese prints and the theories of Arthur Wesley Dow, Stieglitz embraced them because they seemed to manifest his experimental philosophy in a medium other than photography. They also demonstrated secessionist spunk, a quality the "real" Secessionists--the initiates of the Photo-Secession--seemed to have lost by that time, involved as they apparently were in internal squabbles and conceitedness.
Most importantly, they were the creations of a progressive individual, a Photo-Secessioneer in spirit if not in fact (Pamela Colman Smith, "Should the Art Student Think?" The Craftsman 14 [July 1908]:417, 418). Perusing the portfolio, within which he found a picture entitled Death in the House (a sentiment entirely appropriate to the dangers then threatening his colleagues), Stieglitz told the artist, a former Dcm student, "I shall throw a bomb. Come back in four weeks and you can have your exhibition..." (Norman, American Seer, pp. 71-72).

The first exhibition of non-photographic art at the Little Galleries, Colman Smith's of January 5-24, 1907, was not therefore a revelation of a new aesthetic, but an attempt to revitalize an existing, but still viable one seriously in danger of losing its edge. Stieglitz explained in Camera Work:

The exhibition of drawings in black and color by Miss Pamela Colman Smith...marked, not a departure from the intentions of the Photo-Secessioneer, but a welcome opportunity of their manifesting. The Secession Idea is neither the servant nor the product of a medium. It is a spirit. Let us say it is the Spirit of the Lamp; the old and discolored, the too frequently despised, the too often discarded lamp of honesty; honesty of aim, honesty of self-expression, honesty of revolt against the autocracy of convention (Stieglitz, "The Editors' Page," CW no. 18 [April 1907]:37).

In order to bring the "spirit of the lamp" full circle, that is, back to photography, Stieglitz followed the Colman Smith show with the soft focus photographs of Baron Adolf de Meyer and George H. Seeley, photographers he was also to exhibit at the Little Galleries in later years. (De Meyer's work would assume greater significance after Stieglitz's return to experimental photography in 1907.) Writing after the de Meyer and Seeley show, Stieglitz stated ominously to his colleagues, "Although it was a severe test for these pictures to be hung after the exceptionally imaginative work of Miss Smith, they well sustained the prestige of the galleries" (Stieglitz, "Photo-Secessioneer Notes," CW no. 18 [April 1907]:49). After showing Colman Smith's work a second time in the spring of 1908, he reproduced the very Colman Smith-like photographs of Annie W. Brigman in Camera Work.


11. Coburn, cited in Mike Weaver, p. 29.


Thinking of the daring urban landscapes Coburn produced from 1908-10, Hartmann wrote late in 1910:

> It is the men who have preferred the city streets, the impressionism of life and the unconventional aspects of nature to costuming and posing, who have occasionally enriched our wealth of pictorial impressions. In many instances they have discovered and subdued new and unusual motifs and improvised upon the laws of composition with the skill of true virtuosos. I refer in particular to Stieglitz's skyscrapers and dock scenes, and some of Coburn's interpretations of city views (Hartmann, "What Remains," *CW* no. 33 [January 1911]:31).


Hartmann was enamored of Poe's symbolism, since he appropriated Poe's middle name "Allan" as the last name
of his Camera Work pseudonym "Sidney Allan" (He took the first name "Sidney" from the English Shakespearian critic Sidney Lanier, an important influence as well). In Poe's essay "Eureka" (1848), the universe is presented as a vast machine that operates according to a poetic interpretation of scientific laws concerning matter, motion, and force. It is also a particulate mixture of matter and spirit that has been spewed out into the void according to divine plan. In Poe's system, the particles that are now diffused throughout space will eventually be attracted to one another; matter and spirit will conjoin in a single center.

In Buddha (1895), Hartmann conceived Nirvana to be a Poe-like cosmic machine in which stellar bodies expand, then contract, and eventually collide with one another in "a crescendo of concussions." Hartmann, however, set this scene of cosmic flux to neurasthenic color music, to the crescendo and diminuendo of "irisating light," "innumerable hues" and "palpitations." Hartmann's stage directions suggest how great the scope of his imagination could be when he was inspired by Symbolist psychologies:

Poetical license imagines that, at BUDDHA'S entering Nirvana, a color revery takes place in the universe. This scene, a concert of self-radiant colors, is to be represented by pyrotechny, brought by chemistry, electricity and future light-producing sciences to such perfection and beauty that it becomes the new Optic Art, in which Color will rival Sound as a vehicle of pure emotion (Hartmann, Buddha, in Knox and Lawton, eds., Buddha, Confucius, Christ. Three Prophetic Plays [New York: Herder and Herder, 1971], pp. 116, 117).

14. "That art may express itself through mathematically exact forms, I think I have sufficiently demonstrated" ("New Art?" p. 22).

Nothing of Hartmann's was published by Stieglitz from 1905-08, as the former, strenuously objecting to the latter's support of Rood, had withdrawn his own support of Stieglitz's enterprise. January 1908 marks the first month of his reappearance, with possibly this unsigned article and another on the sculptor John Donoghue.


16. "Those that have a rigid form and cannot be explained without destroying them have truly, very little vitality. But if a theory reveals to us certain valid
relationships it can be clothed in a thousand different forms, it will resist all assaults and that which forms its essence will not be changed....The best theories have validity despite all objections; they triumph even over serious objections, but in triumph they are themselves transformed" (Poincaré, "La théorie de Lorentz et la principe de réaction," Arch. Néerl. 5 [1900]:252-78, cited in Goldberg, p. 77).

17. For example, Pierre Duhem claimed that "the French or German physicist intends the algebraic part of a theory to replace just the series of syllogisms used to develop his theory" (Pierre Duhem, The Aim and Structure of Physical Theory, trans. Philip P. Wiener [New York: Atheneum, 1962], p. 79, cited in Welsh, p. 141).

16. The author wrote:

In other words, photography is the art that expresses itself through symbols, which, in their imitiveness of nature, are like those used in painting, but which, in their being scientifically made, and not hand-marked, are also like those used in architecture. That art may express itself through mathematically exact forms, I think I have sufficiently demonstrated... ("New Art?" p. 22).


21. Stieglitz actually used the word "irritant" to refer to the Matisse show, which followed Rodin's in April 1908. However, that term likewise describes his view of the Rodins.

That charged term was made all the more so because of the anarchic philosophical nature of the Rodin catalog essay Stieglitz included as well. Written in a Spencerian frenzy by the English Naturalist and Symbolist Arthur Symons (who had most likely recommended to Stieglitz by Coburn and Hartmann), this text described Rodin's sensuous nude studies by saying: "...the body has rarely any of that elegance, seductiveness, and shivering delicacy of life which we find in the [Rodin] marble [such as The Kiss]. It is a machine in movement, a monstrous, devastating machine, working mechanically, and possessed by the one rage of the animal" (Arthur Symons, untitled essay on Rodin from "Studies in Seven Arts," in CW no. 22
22. Stieglitz, "A Bit of History," p. 25. According to Charles Feidelson, nineteenth century American puritanism stipulated propositional, not aesthetic truth. For the puritanical mind of that time, understanding consisted of analytical interpretation; aesthetic form was merely an ornament. American Puritan conventionality lasted through the third quarter of the century, and as demonstrated in Camera Work, through the early twentieth (Charles Feidelson, Jr., Symbolism and American Literature [Chicago: The University of Chicago Press, 1953], pp. 84, 89, and Hartmann, "Puritanism, its Grandeur and Shame," CW no. 22 [October 1910]:17-19).

23. In keeping with his policy of openness and critical self-expression, Stieglitz did not comment upon Symons's essay. But he probably relished its abstract conclusion about Rodin's drawings:

They speak another language than the drawings of the painter, searching, as they do, for the points that catch the light along a line, for the curves that indicate contour tangibly.

But here luxury becomes geometrical; its axioms are demonstrated algebraically. It is the unknown X which sprawls, in this spawning entanglement of animal life, over the damped [sic] paper... (Symons, p. 36).


25. Stieglitz and White's collaborative ventures had actually begun in the late 1890s when, along with F. Holland Day, they photographed models dressed in classical drapery, with classical statuary as props.

26. Two photographs were given more traditional titles: "Miss Mabel C." and "Torso."

27. After Stieglitz and White parted company in 1912 (their friendship had actually come to an end due to disagreements about the installation of the international pictorial photography exhibition in Buffalo in 1910), Stieglitz repudiated any connection with the Cramer-Thompson series. Terry interprets this to mean that he was repudiating lingering standards of pictorialism, both his own and White's (Terry, "The Steerage," p. 216). Considering the fact that he was to take up these ideas with O'Keeffe six years later, I prefer to interpret this
event as signifying Stieglitz's disappointment in not having carried the 1907 "Experiments" further. He might have repudiated them because they were not experimental enough. (It was White's idea to use soft focus lenses--Stieglitz did not like them but had agreed to go along with him--Homer, *Photo-Secession*, p. 77.)


30. Ibid.


For his part, Caffin was impressed with de Meyer because

The very simplicity of the means involves its own high commendation. For it is founded upon that none too common quality of honesty: the honest study of the resources of the camera and the platinum method of printing; the honest purpose to rely on these resources directly and exclusively, and the honest purpose to shape the vision to what without trickery or evasion these may be made to accomplish....De Meyer's work is modern au point des ongles... (Caffin, "Exhibition of Prints by Baron Ad. de Meyer," *CW* no. 37 [January 1912:44, 45].


35. "Her style of photography did not change radically after about 1902, and by 1907 she had fallen out of favor with Stieglitz; her artistic development did not keep pace with his ideals" (Homer, *Photo-Secession*, p. 67).

37. Rodrigo de Zayas, interview by author, 16 October 1987, Seville, Spain, tape recording. This essentially agrees with the story Marius told Dorothy Norman, with the exception of the following: "In spite of what I said, he decided to show my work. I told him to keep all of it, I gave him everything of mine on display at 291" (Marius de Zayas, quoted in Norman, *American Seer*, p. 107).


39. As Stieglitz did not publish Laurvik's images in *Camera Work*, I have not yet been able to make any thematic or stylistic comparisons.

40. Hartmann, "De Zayas," *CW* no. 31 (July 1910):32.

41. During the fall and winter of 1910 de Zayas wrote two letters to Stieglitz. In the first, dated October 28, he (rather breathlessly) reported on the Salon d'Automne, marveled at the geometric complexity of Metzinger's *Nude* exhibited there and stated his desire to look up "the real article," a Spaniard whose name he could not bring to mind (Picasso). The gist of this letter, however, was his acknowledgment that, although most of the Cubists' work left him dumbfounded, Stieglitz had prepared him to study it further. On December 22 (possibly after he had interviewed Picasso), de Zayas emphatically affirmed this indebtedness by stating:

I wish some of the fellows who have complaint[s] on the Secession would come to Paris, the greatest center of art, to realize what the idea and the importance of the Little Galleries are. To me they appear bigger than many of the colossal [sic] rooms of the Louvre.

I can imagine how tired you must be of struggling. But you can have the satisfaction that your work is not lost, and it is of more importance than what we can realize at the present. You have accomplished more than anybody else in the world of art in America, and I believe that the real thing is just beginning (M. de Zayas to Stieglitz, 28 October 1910 and 22 December 1910, YCAL).


46. This is the title of a book by Henri Poincaré, published in 1902. As has been noted, Stieglitz conceived his gallery role in a Poincaréist sense, that is, a scientist who selects from all possible hypotheses those that summarize key issues under investigation—for Stieglitz at this time, pictorial photography and modern painting. These "hypotheses" for Stieglitz were the writings of critics (particularly Hartmann, Caffin, and de Zayas), and the art of Matisse, Rodin, Cézanne, and Picasso, discussed below.

47. Stieglitz to Hartmann, 22 December 1911, cited in Doty, p. 58.


49. The White Fence (1916) by Strand (published in Camera Work, June 1917) is obviously indebted to early analytic Cubism, say Picasso's Horta de Ebro paintings of 1909, because of its juxtaposed shaded and weighted forms deployed behind a floating element in the foreground (an apt comparison is the painting by Picasso reproduced in Camera Work's August 1912 issue as Spanish Village). A Snapshot--Paris (1911, Fig. 96) by Stieglitz is more subtly Cubist, more like Picasso's contemporary paintings (such as Glass of Absinthe, Autumn 1911). Related and defined forms are repeated across the pictorial field, but not in depth, and these figures do not complete an action or movement, but exist in the picture as questions or fragments, complete only in relation to one another and to the less defined shapes that surround them.

50. Stieglitz, "Photo-Secession Notes," CW 30

51. In April 1908 Stieglitz told Agnes Ernst, then a reporter for the New York Sun (she would eventually join the Stieglitz circle and become one of his chief supporters):

...we believe that the camera is one of the most effective means of teaching people to distinguish between what is beautiful and what is not. It forces upon them a realization of line and composition and forms in them the habit of looking for the pictorial side of everything (Stieglitz, quoted in Agnes Ernst, "New School of the Camera," in Terry, "Photographic Antecedents," pp. 276-77).

Later in 1910, Stieglitz further defined the "pictorial side of everything" as a Hegelian construct, but with one important difference: in Hegel's dialectical system, the final synthesis was philosophical spirit or the world mind; in Stieglitz' view there was no "final" synthesis, but one synthesis following another in a spirit of healthy rivalry. Stieglitz was not interested in the ideal, but in ideas. As he stated in Camera Work:

Photography, claiming to be a legitimate medium of personal pictorial expression, should take its place in open review with other mediums in order that its possibilities and limitations might be the more fairly judged (Stieglitz, "Our Illustrations," CW 32 [October 1910]: 47).

52. Leavens, for example, claims that Stieglitz's shift from photography to art (anti-photography), the antithesis to photography, indicates his development toward dadaism. "For Stieglitz, modern art was essentially the antithesis of photography and this view drove him to present art as radical, innovative and abstract as could be found, in order to demonstrate this antithesis (From "291" to Zurich, pp. 15-16). This thesis of Leavens' does not explain why Stieglitz continued to show and commission essays on photography after he began showing modern art.

53. Stieglitz to George Pratt, 7 December 1912, YCAL.

54. Stieglitz to Bayley, 15 April 1913 and 11 December 1913, YCAL.
55. In a letter of 1913 Stieglitz told Walter Rosenbaum, a friend and supporter:

When I started the publication [Camera Work] I started it with the very definite idea of doing a very definite something. This definite something [the "idea photography"] has virtually been put into form and only some slight finishing touches are necessary to complete it. I don't believe in repetition unless repetition is really essential to the expression of the idea itself (Stieglitz to Mr. Walter Rosenbaum, 17 December 1913, YCAL).

And to Israel White in March 1913 he said:

I am not playing politics nor am I interested in them, except in an indirect way. I am much too much interested in scientific research...(Stieglitz to Mr. Israel White, 18 March 1913, YCAL).

56. For his part, Stieglitz had so released himself from categorized and systematic thinking that when Mrs. Edward Knobloch, a friend of Gertrude Stein's, presented him with the latter's unromantic, object-oriented word portraits of Matisse and Picasso in December 1911 or January 1912, hoping that he might publish them, he immediately agreed, then after considerable reflection wrote (in a pointedly mathematical vein):

These articles bear, to current interpretative criticism, a relation exactly analogous to that born by the work of the men of whom they treat to the painting and sculpture of the older schools. So close, indeed, is this analogy that they will doubtless be regarded by many as no less absurd, unintelligible, radical or revolutionary than the so-called vagaries of the painters whom they seek to interpret. Yet—they employ a medium in the technical manipulation of which we are all at least tyros....And hence they offer—to all who choose to examine them with an inquiring mind—a common denominator of comprehension...to that intellectual and esthetic attitude...upon one phase of which they are comments... (italics mine). (Stieglitz, "Editorial," CW Special Number [August 1912]:n.p. Following this are the texts of Stein's essays, "Henri Matisse" and "Pablo Picasso.")

Stein's essays on Matisse and Picasso constituted criticism of the highest, most avant-garde order. It has
been noted that hers was a photographic mind because she did not try to control what she observed, but merely observed and recorded. As Leon Katz has observed, "In her works the thing seen, the angle of vision, the trivial, the detail, and focus—all become important" (Leon Katz, *Four Americans in Paris* [New York: Museum of Modern Art, 1970], p. 60). That Stein's observations also included the conventions of language which she treated as members of a dialectical process undoubtedly interested Stieglitz. That her word portraits were constructions composed of perceived, diagrammed, and interrelated sensations must have interested Stieglitz as well, because Ernst Mach had defined the aim of scientific generalization in a similar way. In Mach's view, concise, abridged description of phenomena—that is, events and objects perceived by the senses—was the first task of the scientific investigator; the second task was to interrelate these phenomena. As has been described throughout this study, direct description and the interrelation of forms realized through direct description were Stieglitz's own aims as well.

57. Marius de Zayas's most advanced ideas were indebted to Stieglitz's dialectic. In a *Camera Work* essay entitled simply "Photography," de Zayas defined imagination as a

creative faculty, whose function consists in producing new images and new ideas. Imagination is not merely the attention which contemplates things, nor the memory which recalls them to the mind, nor the comparison which considers their relationship, nor the judgment which pronounces upon them an affirmation or a negation. Imagination needs the concourse of all these faculties, working upon the elements they offer, gathering them and combining them, creating in that way new images or new ideas (de Zayas, "Photography," *CW* no. 41 [January 1913]:19).

Notwithstanding this affirmation of human capacity, de Zayas then qualified this notion by stipulating the task of photographers (while they might be imaginative individuals) to be the penetration of the essence of matter (that is, the material productions of modern, Caucasian culture to which they belonged). "Photography represents Form as it is required by the actual state of the progress of human intelligence," he wrote. "In this epoch of fact, photography is the concrete representation of consummated facts. In this epoch of the indication of truth through materialism, photography comes to supply the material truth of form" (Ibid., p. 20).
It would not be until late 1913 that de Zayas would be able to state without hesitation that modern art and modern artistic photography both shared "systematic and personal representation" of the "objectivity of Form," and that these representations were just as significant as the realistic (technologically produced) material that artists selected. Choosing Stieglitz as the artistic photographer par excellence, de Zayas now expounded the notion that Alfred's subjection of material form (ships, and the buildings of Manhattan) to ideal form (his imaginative reconstructions of these entities) was an important "means by which man tries to bring the natural expression of Form to the cognition of his mind" (de Zayas, "Photography and Artistic Photography," CW no. 42/43 [November 1913]:13-14).

58. Homer, Photo-Secessions, pp. 144-47 andDoty, pp. 54-57.


60. For example, Buffalo photographer F. Austin Lidbury wrote in Amateur_photography, "The last noteworthy impression you get from the show is that of finality. You meet it in the foreword of the catalogue; there is a certain sense of finality in the very phrase 'summing up.' Even the makeup of the exhibition itself, with its parading of old and forgotten protagonists, sounds like the word finis" (F. Austin Lidbury, review of International Exhibition, Buffalo, reprinted in CW no. 33 [January 1911]:70).


62. Weber hung his own one-man show at "291," which opened in January 1911, just after the Buffalo photography exhibition closed. Recalling that installation, Stieglitz said, "It is one of two Shows I did not participate in hanging, and I've sponsored over 400 exhibitions. The little room, fifteen feet square, when I entered it in the morning, overwhelmed me. How Weber ever managed to get so many square feet of paintings into the little space and so perfectly, still remains a miracle to me" (Stieglitz, letter to Edith Halpert, in North, p. 18).

It is important to note that the Albright show was the last major show of pictorial photography organized by Stieglitz. He continued to exhibit photographs at "291" on a limited basis, deciding to feature modern painting and sculpture. This was not because he felt art photography had come to an end; rather, he believed photography, painting and sculpture shared a new idea, and the latter two expressions had not as yet been as thoroughly promoted (and evaluated) as photography.


66. These shows, along with those of Matisse, Rodin and the "Younger American Painters," were actually curated by Steichen, who arranged for them in Paris. Stieglitz, however, had the final word on all of these exhibitions and must be given final "curatorial" responsibility.

67. Stieglitz, "Photo-Secession Notes," CW 31 (July 1910): 41. Mentioned are Cézanne, Matisse, Lautrec, Rousseau, Rodin and Picasso, but no schedule is given for the Cézanne show and no specific works are listed. A note in the October 1910 Camera Work reads:

The three reproductions of non-photographic pictures in this number [two by Matisse, one by Gordon Craig] form a prelude to a forthcoming number in which there will be an important contribution of drawings by Auguste Rodin, reproduced in facsimile, but in a slightly reduced size (Stieglitz, "Our Illustrations," CW no. 32 [October 1910]: 47).

68. As Stieglitz wrote to a Mr. Watkins in 1913, "As you know the publication is not a business undertaking, nor am I going to continue it indefinitely. Each Number of 'Camera Work' is a unit; it is an entity in itself" (Stieglitz to Mr. Watkins, 24 December 1913, YCAL).

69. Stieglitz to Hollie Elizabeth Wilson, 2 April 1915. YCAL.

70. John Elderfield, The Drawings of Henri Matisse
Elderfield states that through this conceptual process, the drawing achieves such formal weight and power that it impresses itself into the surface of the sheet, and the latter appears to buckle under the pressure.


73. Hartmann wrote an essay for the Matisse issue entitled "Puritanism, Its Grandeur and Shame." In it he excoriated not only the "New England conscience, morbid and oversensitive, yet inexhaustible in patience and sacrifice," but Puritanism as an existing condition in American society." In his 1908 book The Wine of the Puritans Van Wyck Brooks had defined the Puritan as overtly stern, sanctimonious, sentimental, escapist, and anti-experiential. "Absolutely free is only the original thinker with an exceptional, far-seeing philosophy who speculates solely on the basis of personal observation and deduction therefrom," proclaimed Hartmann (Hartmann, "Puritanism, Its Grandeur and Shame," p. 18).

In "Decadence and Mediocrity," also published in Camera Work in October 1910, de Casseres exclaimed, "What mansions they build, these prophets of stale things, these babblers of buckeyes!--all at last blown to atoms when they venture near the arsenal of an original brain [such as Matisse's] with its 'morbid' or 'decadent' ideas!" (Benjamin de Casseres, "Decadence and Mediocrity," CW no. 32 [October 1910]:39).

De Casseres was by his own admission a born writer with a pedigree (he claimed to be a direct descendent of philosopher Baruch Spinoza) and an anti-Semitic Jew, a Dadaist avant la lettre (Peter Plagens, "The Critics: Hartmann, Huneker, de Casseres," Art in America 61 [July-August 1973]:70). A native of Philadelphia, he began his literary career as a proofreader, then slowly moved up to literary critic for the New York Herald. In 1906 he moved to Mexico City where he founded and edited the journal El Diario; it was there that he met and employed the young caricaturist Marius de Zayas. Patently against the regime of Porfirio Diaz, the de Zayases, a powerful
family who were also among the cultural elite of Mexico City, and de Casseres as well were singled out for harsh treatment. Both editor and caricaturist transferred to New York around 1907, where, as we have seen the latter's work soon caught the attention of Laurvik, who introduced him to Stieglitz. De Casseres emerged in Camera Work, as might be expected, as the critic commissioned to review de Zayas's first one man show at "291" in January 1909. All told, he wrote 16 articles for the journal from 1909 through 1913.


75. Auguste Rodin, Art. Conversations with Paul Gsell, trans. Jacques de Caso and Patricia B. Sanders (Berkeley, Los Angeles and London: University of California Press, 1984), p. 44. These conversations were first published in French in 1911, but there is no indication that Stieglitz had a copy of them when he published the April-July 1911 Camera Work.

76. Symons, p. 36.

77. Stieglitz, "Photo-Scession Notes," CW no. 32 (October 1910):41. It is important to note that Paul Haviland was writing columns for Camera Work at this time and may have been the actual author of these as well as other "Notes." However, as Greenough has stated, the ideas written in these unsigned columns must have been sanctioned by Stieglitz ("Photographs of Clouds," p. 90, note 23) and, as this study shows, they dovetail exactly with his evolved philosophy.


82. Stieglitz, "The Exhibitions at '291,'" p. 29.


85. In his article on Rodin for the April-July 1911 Camera Work, de Casseres defined instinct as "the adventure of the mind in matter; the adventure of the sense in air, water and sunlight; the deliria of creation; the divinizing of the sensual and the materializing of the sensuous" (de Casseres, "Rodin and the Eternality of the Pagan Soul," CW no. 34/35 [April-July 1911]:13). By this time de Casseres had come to admire Matisse as well, and placed both Frenchmen in the ranks of those who worked to unshackle creative intuition.

Hartmann also wrote on Rodin for the April-July 1911 issue, and challenged de Casseres by adumbrating a more formalist concern for "primitivizing" sensations:

The feelings are esthetic but do not belong to the domain of sculpture proper, as we have understood it for ages past, but to a more instinctive appreciation of form that still finds a lyrical echo in every human breast. It makes an appeal to our most primitive mode of perception and thereby creates vague emotional feelings, suggestive of mystery and mysticism (Hartmann, "Rodin’s Balzac," p. 20).

As might be expected, Caffin’s piece, "A Note on Paul Cézanne," elucidated this critic’s interpretation of direct description, mediated not only through the work of the French painter but also and undoubtedly through Stieglitz. "If one may venture to try and express in one word Cézanne’s most personal contribution to art it is that he has tended to intellectualize it," Caffin wrote, continuing, "He established as the principle of form in nature that it is based upon the geometric figures of the sphere, cone and cylinder." Caffin went on to speculate:

Possibly he is an extremist in his persistent effort to reduce everything in art to something that could command itself to reason. Nevertheless, in the demand which his pictures make upon the intellectual esthetic faculties [Caffin’s and Stieglitz’s], they are welcomed by many—an increasing number—as pools of water in a thirsty land (Caffin, "A Note on Paul Cézanne," CW no. 34/35 [April-July 1911]:50, 49).

86. Stieglitz, "Exhibitions at ‘291,’” pp. 29, 30.

88. Guillaume Apollinaire, quoted in Roskill, p. 32.

89. Stieglitz merely stated, "Picasso, a young Spaniard living in Paris, is one of the leading influences among modern painters" (Stieglitz, "Exhibitions at '291,'" p. 30).


91. Ibid.

92. It has been shown that Stieglitz's editorial decisions of 1910-1911 also confirm this. Likewise does the tenor of Hartmann's and de Casseres's writings he would publish in *Camera Work* during the 1911-12 season and in conjunction with his own New York oeuvre.

In conjunction with their intense focus on individual sensation and Stieglitz's elementist photographs, both Hartmann and de Casseres came to abjure Hegelian fundamental forms for a notion that form should be unique to a unique creator.

Hartmann commenced his October 1911 *Camera Work* article, "Structural Units," with Marcel Schwob's definition, "Art is opposed to general ideas, it describes only the individual, it desires only the unique," then proceeded to divine form in singular geometric shapes--rhomboids and rhombuses, ellipses, isosceles triangles (Hartmann, "Structural Units," pp. 18, 19. This article was published in the October 1911, Stieglitz issue of the journal; illustrated were The Steerage and the series of New York photographs completed in 1910.)

"Unity, the great superstition, sleeps," wrote de Casseres in his article "Modernity and the Decadence," published in *Camera Work* in January 1912. "We have dissolved it into an infinite number of iridiscent [sic] particles. Unity sleeps; nothing remains but units." And in "The Minutes" of 1913, de Casseres proclaimed, "Each Minute has a personality; each Minute has a mood; each Minute has an eternity behind it--a private eternity, a private oblivion, a private destiny...." (de Casseres. "Modernity and the Decadence," *CW* no. 37 [January 1912]: 17, and "The Minutes," *CW* no. 51 [January 1913]: 21).
After deconstructing composition to the point that "decomposition [was] the condition of birth," de Casseres could, it seems, only dream ("Modernity," p. 18). It was up to other minds, namely Hartmann's, de Zayas's and Stieglitz's, to seek new unities, new relationships. The close relationship of the latter's modernism to modernist European aesthetic theories (including de Zayas's interpretation of them) is discussed in the concluding chapter to this study.

93. In Snapshot--Paris, soft focus serves not to dissolve elements and spatial relationships, but to intimate the fluctuant quality of space itself. This was Picasso's rationale as well, as shown in paintings such as Woman (1910), a work dating to the same period as Stieglitz's Nude. For additional comparisons, see note 49.


95. An interesting comparison can be made between this issue of Camera Work and subsequent ones with which scholars have dealt more fully, such as the Special Number of June 1913, a post-Armory Show presentation of European modernism featuring articles by Gabrielle Buffet-Picabia, Gertrude Stein, Mabel Dodge, and Oscar Bluemner. Whereas modern art was a fait accompli in the New York cultural scene by this latter date (the Armory Show spawned a torrent of critical apology and abuse), it was merely emergent there two years earlier, and only in Stieglitz's gallery. Stieglitz's deft amalgam of progressively more modern art expressions (the art of Rodin, Cézanne, and Picasso) in the April-July 1911 Camera Work is in my view equally worthy of study, particularly since also conjoined in that issue are the avant-garde ideas of de Zayas, Hartmann, Caffin, de Casseres, Stieglitz, and Picasso (de Zayas's article was the first extended interview published with the Spanish modernist).

Although the scope of this dissertation does not permit an extended analysis of this issue of Camera Work, it is important to note just how forward thinking the journal had come to be under Stieglitz's leadership, and how intimately tied this modernism was to science.
CHAPTER ELEVEN

CONCLUSION: ALFRED STEIGLITZ, EXPERIMENTAL SCIENTIST, ACTIVIST, AND AESTHETICIAN

It was probably in late 1894 or early 1895, a time when he was recovering from a debilitating illness, that Alfred Stieglitz first came upon an aphorism written by the early nineteenth century German romantic writer Friedrich Nietzsche, which he would take to heart. As Stieglitz recounted this event to Dorothy Norman:

I happened to open the book at a particular page, and on this page I saw written: "There are three classes of human beings: the artist, the scientist and the sportsman." I put down the book and felt that this was all I needed to read....I found that what Nietzsche had said was true for me from what I knew of life.¹

Although Stieglitz did not mention which text of Nietzsche's he had consulted, it quite probably was Human. All-Too-Human. A Book for Free Spirits (1886), which contains numerous references to the temperaments alluded to in the passage quoted above. Stieglitz would have found that Nietzsche's thesis in that volume, which constituted a declaration of spiritual independence, perfectly tallied with his own position that, if rules for his life were to be made, they would be made by him alone². Stieglitz must also have found a corresponding chord in the preface to Free Spirits where Nietzsche said:

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I invented once on a time the "free spirits," to whom this discouragingly encouraging book with the title *Human, all-too-Human*, is dedicated....I then required them for company to keep me cheerful in the midst of evils (sickness, loneliness, foreignness,—*acedia*, inactivity) as brave companions and ghosts with whom I could laugh and gossip when so inclined and send to the devil when they became bores....Already I see them coming, slowly, slowly; and perhaps I am doing something to hasten their coming when I describe in advance under what auspices I see them originate, and upon what paths I see them come."

This concept of the free spirit was obviously germane to the understanding of Nietzsche's philosophy. How were its characteristics made manifest? They were manifest in the sportsman, who should be a specimen "of splendid health...entitled to live by experiments and offer [him]self to adventure." They were manifest in the artist or thinker who "constantly produces good, mediocre, and bad, but his judgment, most clear and practised, rejects and chooses and joins together...from many different attempts." And they would also be manifest in the scientist, a person steeped in both idealism and experience. As Nietzsche explained:

The value of strictly pursuing science for a time does not lie precisely in its results, for these, in proportion to the ocean of what is worth knowing, are but an infinitesimally small drop. But it gives an additional energy, decisiveness, and toughness of endurance; it teaches how to attain an aim suitably.

He continued, "...the general, great sciences...regarded as a whole, call up the question—certainly a very non-objective one—'Wherefore? To what end?'"
Just as Nietzsche's notion of the scientist was an activist and idealist one, Stieglitz's philosophy of science was predicated on energy, capacity, tenacity and dedication to lofty ideals. At the time he was reading Nietzsche, Stieglitz was intent upon expanding the photochemical and mechanical possibilities of photography, expanding his perceptual capacities and, in his own serial work, integrating perceived phenomena (wind, snow, and steam) into a conceptually derived armature (the comparative series).

Considering the format of Free Spirits, a collection of aphorisms organized somewhat loosely into chapters, it can be assumed that Stieglitz ranged freely in the book, picking out those quotations he deemed apropos to his interests and current pursuits. This is how he had organized his booklet of quotations while studying chemistry, photochemistry, and philosophy in Berlin.

However, there is one section of Free Spirits, the first paragraph in a chapter called "Concerning the Soul of Artists and Authors," which must have been particularly eye-opening. In it, Nietzsche expanded on his comments about the sportsman, artist, and scientist, incorporating them as manifestations of multivalent humanity: at the same time physically expansive, mysteriously creative, and rigorously (albeit correctively) intellectual. Nietzsche wrote:
...we are still under the effects of an ancient mythological feeling. It still almost seems to us (in such a Greek temple, for instance, as that of Paestum), as if one morning a god in sport had built his dwelling of such enormous masses....The artist knows that his work is only fully effective if it arouses the belief in an improvisation, in a marvelous instantaneousness of origin....It is the business of the science of art to contradict this illusion most decidedly, and to show up the mistakes and pampering of the intellect, by means of which it falls into the artist's trap.5

Lest his readers conclude from this passage that a scientist was not to be considered a creative, expansive spirit, unlike the artist and sportsman, Nietzsche made it clear later on that such was not the case. All three of these types had characteristics in common. The artist should be a great "worker" who rejects, reviews, transforms, and arranges. Likewise the scientist could be "possessed of genius."6

Alfred Stieglitz was certainly not the only person reading Nietzsche in the 1890s. Nietzsche's writings were popular at the turn of the century in many artistic as well as scientific circles here and abroad. Even in popular magazines, American progressive scientists were equating Nietzsche's "will to power" with the ebullient pioneering spirit with which they were investigating the forces of the natural world.7

Like these scientists, Alfred Stieglitz apparently found Nietzsche's advocacy of instinct, will, and genius a challenge to his thought. As demonstrated in his
serial photographs of the mid- and late-1890s, and in The Steerage, "291," and Camera Work, he too believed that great men and women were those of "force and power," the "highest exemplars" of original thinking. He also saw intuition as the watchword of genius, claiming that "Culture in the true sense cannot be learned, or taught." But, as this study has shown, Stieglitz always combined his intuitive feeling for creation with a twentieth century experimental scientist's probing desire to view the creative spirit--particularly his own--in action.

The preceding chapters have demonstrated that Alfred Stieglitz had an extensive, wide-ranging scientific education, concentrating on, but certainly not limited to, photography. Gifted in mathematics and reared in a family that prized scientific and technological achievement, he honed his mathematical skills as an engineering student of Franz Reuleaux at the Charlottenburg Polytechnic near Berlin. Drawn to the experimental, laboratory sciences and to the University of Berlin, he subsequently attended courses taught by A. W. Hofmann, one of the great chemists of his time, and by Emil du Bois-Reymond, a leading physiologist.

These scientists impressed the young Stieglitz not only because of their accomplishments, but because of their pedagogical and experimental zeal. For them
experimentalism was an empirical process, entailing the analysis of the grammar of physical reactions and the search for causes underlying physical phenomena. Experimentalism for these scientists was also linked to the philosophy known as Wissenschaftsideologie, the ethical ideal of cooperative and continuous research associated with German universities (at that time the leading scientific institutions in the world). Personifications of experimentalism, du Bois-Reymond and particularly Hofmann were to inspire Stieglitz to dedicate himself to similar goals on American soil.

Having decided to specialize in chemistry, Stieglitz read texts on experimental methods and philosophy and attended university lectures given by other leading research professors, including Germany's reigning scientist, Hermann von Helmholtz.

Thus, Alfred Stieglitz became theoretically grounded in empirical and philosophical notions of experimentalism, which were no doubt further expanded as he familiarized himself with the even more avant-garde theories of science then being formulated by Ernst Mach and Heinrich Hertz. These theories went beyond empirical research and causality to explore relational thinking, the rationale according to which scientific investigation was to be pursued.

A scientist in theory if not yet in practice,
Stieglitz chose photochemistry as a career and apprenticed himself to Hermann Vogel, a professor of photography, whose aim it was to advance modern technology through precise and accurate photo-documentary techniques. In Vogel's laboratory he studied the requisite techniques and technological breakthroughs (such as the Vogel panchromatic emulsions) so as to be able to pursue photochemical experiments on his own.

Had he not studied and dedicated himself to experimentalism at an earlier date, however, Stieglitz probably would not have become the photochemical authority that he did at the turn of the century. Thus, it is to the influence of Vogel and Hofmann that Stieglitz' work in processing and printing methods must be attributed, and it is because he was associated with their state-of-the-art laboratories that he was able to duplicate these institutions' goals, first in the Photochrome Engraving Company, then in the New York Camera Club, and finally in the Little Galleries of the Photo-Secession.

Singularly dedicated to laboratory research, upon his return to New York Alfred Stieglitz became a leading advocate of photochemical progress in practice and—as a writer and editor—in print. He surrounded himself with other like-minded experimentalists, such as George Davison, Joseph Keiley, and Eduard Steichen, and promoted their work. His agenda was not merely to apply German
academic laboratory practices to American needs, but to conjoin laboratory science and art.

It is not enough to know that Alfred Stieglitz had artistic talent, had undoubtedly been influenced by his father (an amateur painter), and had associated with his father's art-minded friends. As the younger Stieglitz based his scientific ventures on perceptually-keyed scientific theory, he based his artistic explorations on perceptually-keyed theories of art.

As we have seen, Stieglitz's first major source for aesthetic theory was the photographer P. H. Emerson, to a certain extent a perceptually oriented thinker, unlike his contemporaries and compatriots H. P. Robinson and John Ruskin, who were mired in attempts to realize canonical tenets of truth and beauty (Vogel considered himself one of these "pictorialists"). Emerson was not only a naturalist photographer who felt the study of real life was more interesting than setting up ideal-life tableaux in the studio, but he was also a scientific investigator, observing nature in order to isolate aspects for concerted study. In Emerson, Stieglitz found not only a role model, but living corroboration of his own idea that perceptual science, specifically that of Helmholtz (an aestheteician as well as a scientist), could also be a science of photographic art.

Notwithstanding his knowledge of and interest in
early nineteenth century German idealism, according to which human ideas are reflections of dominant and unchangeable monads (for Kant, the Unknowable and for Hegel, the Philosophy of Mind), Alfred Stieglitz did not strive to apply these extremely influential notions to his photography. It is true that he conceived photography to be an intensely personal and spiritual calling, but this was characteristic of Wissenschaftideologie, his scientific attitude, as well. Moreover, he was far too interested in natural phenomena to "tie them down" to categorized systems of thought, and he was as passionately involved in empirical research as he was in the beauties of nature.

Thus Stieglitz abandoned Emerson when Emerson abandoned naturalism, and he refused to abide by Emerson's aesthetic prescriptions (for example, differential focusing), which were supposedly guaranteed to engender "pictorial effect." Instead Stieglitz went back to Emerson's (and his own) sources, the theories of Helmholtz. Armed with these he proceeded to redefine "effect" as atmospheric brilliance rendered in tones almost equally bright in relation to one another, and as atmospheric subtlety rendered in deep, luminously haloed tones (respectively, Helmholtz's notions of bedazzled and moonlit vision, Figs. 97 and 98).

Key to Stieglitz's vision of the early and mid-
1890s are three qualities Helmholtz had taught him to concentrate on: perceptual acumen, perceptual intensity, and interrelated luminous tonalities. To these a fourth can be added: a feel for materialism or physicality (for example, the physicality of the human form, pelting snow or escaping steam, Figs. 14 and 98). Scientific materialist theories were also a German legacy, and Stieglitz had studied them during his extended periods of independent research in Berlin, as well.

The years 1890-1910 saw Alfred Stieglitz's view of science mature from a materialistic and empiristic one conditioned by the ideas of Helmholtz and other scientists whose texts he read (chiefly Thomas Huxley and Karl Vogt) to an empirio-critical one quite possibly indebted to Mach.

In his four major philosophical texts written over the period 1883-1905, this renowned Austrian physicist admitted the validity of empirical research (the adaptation of thoughts to facts) but wrote more extensively about experiential research, in his view the adaptation of thoughts to one another. According to Mach, sensory phenomena were reducible to discrete elements of sensation; the scientist's task was not merely to classify these, but to investigate and interrelate them from various points of view.

Scientific thought could be seen as proceeding from
indirect description (comparing one element with another) to direct description (apprehending elements conceptually and abstractly). The structures of science were continuously being erected according to this two-step process, Mach believed, and their validity confirmed through experience. Yet, even if they conflicted with some experimental result, they were also valid as thought structures, and became even more interesting as they interacted (or conflicted) with one another.

Of like import was the mode of thinking through which these ideas were formulated. For Mach, abstract thought was the highest form of scientific thought, in his words a "bold intellectual move." For Stieglitz, abstraction (direct description) defined the modernity of The Steerage, the photographs which followed it, and perhaps even his early structurally premised works (Figs. 2, 86, and 6), relegating his empirically premised works to a position of lesser importance.

In the philosophy of Mach, Stieglitz also would have found a world view that combined positivism (the determination of the conditions governing the occurrence of phenomena) with idealism (the notion that particular phenomena are subsumed in, and governed by, universals). Furthermore, Mach's theories conceivably were instrumental in molding Stieglitz's romanticism to neo-romanticism, the dynamic world view premised on the primacy of
the individual as both free spirit (Nietzsche's view) and agent of change. Stieglitz's non-scientifically premised activities of this period demonstrate that this shift in viewpoint did not occur as a continuous or unbroken development. But once formulated, Stieglitz's conceptual, abstract, and experiential world view had lasting implications, for his own work as well as for his contributions in the global arena of modern art.

This is not to say that Alfred Stieglitz's "aesthetic phase" (c. 1897-1903) marked his withdrawal from science. On the contrary, this period marked the emergence of the Camera Club (which, as Vice President, Stieglitz helped to administer) as a major center for photochemical research. Notwithstanding the pressure of editorial responsibilities (he was in charge of the club's journal Camera Notes), Stieglitz also dedicated much time and effort to refining and perfecting processes that art photographers found beautiful, but vexing. And in his own work (Fig. 43), he strove to apply his research in subtle, painterly (albeit purely photographic) ways.

Furthermore, Stieglitz became even more active in the amateur photographic world than he had been before; seeing that his ideas were not acceptable to the administration of the Camera Club, he spearheaded the formation of his own club, the Photo-Secession, on the lines of
elite European salon photography groups such as the Linked Ring.

What differentiates this period from what came before and after is its non-Machist orientation, defined here as the measure of Stieglitz's modernity. Mach's philosophy revolved around Denkökonomie, economy of thought. During his "secessionist" phase Stieglitz espoused a contrary philosophy, pictorialist poetics or diffuse complexity of thought.

Concurrently, however, stimulated by experiential, instrumentalist philosophies and psychologies and by two scientific events in America, the evolution of the experiment station movement and the 1904 Congress of Arts and Sciences in St. Louis, Stieglitz broadened his view of science to incorporate these additional concerns. He parlayed his notion of an activist international art photography organization (the nucleus for the Photo-Secession) into that of a laboratory of ideas, any of which could claim veracity if proved to be derived from personal experience, and all of which became more interesting when confronted with one another in a controversial forum (Camera Work, particularly the April-July 1911 issue).

It has not heretofore been realized exactly how significant the scientific and artistic experimentalists whose researches opened further avenues of experimenta-
tion were to Stieglitz, but in fact they were of key importance to his development as an avant-garde thinker. These include Sadakichi Hartmann, whose notion of the indefatigable pioneer, dedication to technological optimism, advocacy of straight photography, and ideas about abstract building blocks of composition were clearly influential. Charles Caffin, another technological optimist, coined the term "abstract expression," and defined artistic creativity as a meld of intuitive feeling and ratiocination. As he was an advocate of practical idealism, the theme of the St. Louis congress, Caffin was the most likely conduit to Stieglitz of many early twentieth century ideas discussed there, such as Royce's theory of activist idealism and Poincaré's notion that the scientist's business should not be to determine what an ideal means, but how it works and how well it could be measured. Julius Stieglitz, an organic chemist who had been educated in the same progressive milieu, by the same leading professors, and in the same classes as his older brother Alfred, stressed the interrelationship of the sciences, placing them in the vanguard of modern society as models of propriety, activism, and perseverance. Lastly, Eduard Steichen, through his work in the Lumière process of color photography, an important photochemical advance, was the one who first stimulated Stieglitz to prophesy developments in modernist aesthet-
ics. If color photography could accurately document the tints of the natural world, painters must no longer rely upon documentation or preestablished color harmonies; in order to remain modern, Stieglitz came to believe, they would have to follow the experimental leads suggested by science and wrest novel color relationships directly from nature.

The three high points of Alfred Stieglitz's post-secessionist and pre-1911 career were his reconstruction of the Little Galleries as a forum and catalyst for experiential thinking, discovery, and controversy; his economical and formalist photographs of 1907-10; and his dynamic notion of "idea photography," the heir to Symbolism which he found in both photography (his own, the work of Paul Strand, and to a certain extent the abstract photographs of Coburn and de Meyer)\textsuperscript{11} and in avant-garde art (the works of Rodin, Matisse, Cézanne, and Picasso).

These accomplishments demonstrate that Stieglitz's mature goals evolved in a modernist matrix and according to the tenets of Machist abstraction. He was determined to expand the technical and conceptual parameters of photography, seeking representations and explicators of ideal, experiential realities. His images came to be not merely transcriptions of perceived scenes or events, but carefully framed groupings of forms which manifested the dynamic structure of those scenes or events. The modern-
ist enterprise that has made Stieglitz famous was prem-
ised on the same ideals and their abstract realization in
photography, drawing, painting, sculpture, and criticism.

The events traced in this study take on even more
significance when placed in the broader, philosophical
context of early twentieth century modernism. Thus
reconsidered, Stieglitz becomes a figure of major impor-
tance and an aesthetic determinant, rather than solely a
conduit and corroborator of ideas formulated by others,
such as Mach. The importance of Mach to Stieglitz is not
thereby lessened. (He would have been Stieglitz's most
logical source for avant-garde scientific ideas: his
influence first appears in Stieglitz's aesthetic soon
after the publication of his 1886 text *Analysis of
Sensation*, then reappears after the publication of
*Popular Scientific Lectures* [1895] and *Knowledge and
Error* [1905].) In fact, the importance of Stieglitz to
modernism is thereby considerably enhanced. Indeed,
Stieglitz can thus be considered a Machist thinker in the
broader context of American Machist philosophy.12

It has been established that one aspect of
Stieglitz's modernity comprised experiential and experi-
mental thinking on the lines of a Machist model. Accor-
ding to this model, there is no definitive boundary
between mind and matter, subject and object, the external
world and the internal, mental world--what truly exists
is the one great "porridge" or potentiality of experience, the as-yet unformed substance out of which principles and concepts are formed.\textsuperscript{13} "The single sense-perception is neither conscious nor unconscious," Mach wrote. "It becomes consciously known by being set in the context of present experience."\textsuperscript{14}

In his 1897 book The Will to Believe, the American philosopher, psychologist, and physician William James advanced his very similar principle of radical empiricism. In James's view relations were to be considered as real as the elements that human consciousness interrelates; both exist in the sphere of ordinary experience (the activist's domain), which is different from but dependent on pure experience, the immediate flux or connective tissue of life.\textsuperscript{15} As James expressed it, pure experience is "shot through not only with nouns and adjectives but also with prepositions and conjunctions."\textsuperscript{16}

Seen from the perspective of Jamesian radical experience, Stieglitz's publication in 1912 of Gertrude Stein's stream-of-consciousness word portraits (themselves indebted to James, with whom she studied) and Sadakichi Hartmann's stream-of-consciousness essay, "Broken Melodies," does not appear isolated or non-germane.\textsuperscript{17} To Stieglitz, by that time firmly committed to the dialectical process of photography, anti-photogra-
phy, and idea photography, these compositions manifested
synthetic "idea photography," which was not just a matter
of one or even many media, but the condensation of ideas
from pure experience. Stein's word portraits, through
repetition and variation, gave protracted existence to
moments. And Hartmann's essay, a "mystic musing" on
melody written with extensive spacing between sentence
groups, moved toward the creation of "new states of
being, never before quite consciously experienced."18
Stieglitz's support of Matisse, who actually coined the
term "condensation of sensations,"19 can be considered
part and parcel of this experiential aesthetic.

James's contemporary, the instrumental American
psychologist John Dewey, also wrote about pure and ordi-
nary experience, terming the former a primary, pre-
cognitive state of being and the latter, a transaction or
process of doing or undoing. Dewey's notion of transac-
tional experience, like Stieglitz's directorship of
"291," involved an active and forceful forging of rela-
tions between individuals and their environments (in
Stieglitz's case, the wider world implied in the exhibit-
ed works of art). There was to be no talk of unchanging
spheres of beauty, truth or consciousness, Dewey and
Stieglitz believed (in a true late nineteenth century
idealist and neo-romantic vein); rather, philosophical
discussion was to concern itself with change as a way of
life and as a bond cementing art and science.\textsuperscript{20} The primary representative of Dewey's philosophy in the Stieglitz circle was Agnes Ernst Meyer, a newspaper reporter, then collector and critic who had studied under Dewey and read James. An instrumentalist by education and choice, she elicited Stieglitz's most potent definition of experience in an interview of 1908:

We are searching for the ultimate truth, for the human being who is so simple in every way that he can look at things objectively with a purely analytical point of view....for freedom of experience and justice in the fullest sense of the word.\textsuperscript{21}

Finally, and a generation later than James and Dewey, the American philosopher Bertrand Russell espoused a theory of neutral monism, according to which the psychical and physical were seen as part of the same primary material, differing solely in arrangement and context.\textsuperscript{22} Russell's ideas fall outside of the chronological purview of this study, but, significantly, he was one of the few philosophers of science Stieglitz is documented to have read.\textsuperscript{23}

The other aspect of Stieglitz's modernity comprises formalist abstraction. As noted throughout this study, this was a key tenet of Mach's, expressed in the terms "elements," "direct description," and \textit{Denkökonomie}. Condensed, abstract descriptions of reality were also sought by the avant-garde French artists Stieglitz studied, then exhibited and commented upon. These
notions were given additional theoretical gloss by other key theorists of avant-garde, beginning with Bernard Berenson in the 1890s. A review of their ideas reveals a not-so-surprising interrelationship with Stieglitz's.

The writings of Berenson, an art historian, connoisseur, and theorist, were known to Stieglitz through their mutual friend, Gertrude Stein's brother Leo. Berenson, who was responsible for steering Leo to the works of Cézanne, considered works of art to be objects or phenomena ripe for experimental investigation, and in his The Florentine Painters of the Renaissance (third edition 1896) he described the perceptual process as "nativistically tactile." "It follows," Berenson wrote, "that the essential in the art of painting—as distinguished from the art of colouring...is somehow to stimulate our consciousness of tactile values, so that the picture shall have at least as much power as the object represented, to appeal to our tactile imagination." It was Berenson's belief that the formal qualities of Florentine Renaissance art and Cézanne's painting were both worthy of study because they stimulated not only pleasurable sensations, but also investigative thought processes. "Precisely this is what form does in painting," he explained, "it lends a higher coefficient of reality to the object represented, with the consequent enjoyment of accelerated psychical processes, and the
exhilarating sense of increased capacity in the observer." As discussed, Stieglitz believed that the significance of his photograph *The Steerage*, a composition of tactile forms, lay in its ability to lend a coefficient to reality, that is, enhance his experience of related forms, shapes, and feeling.

Stieglitz's ideas on form in 1907-10 were also congruent with avant-garde European criticism of the time, specifically the formalism of the English critics Roger Fry and Clive Bell. Howard Risatti and Jacqueline Falkenheim have amply demonstrated the importance of an exhibition of Post-Impressionist painting (featuring Cézanne, Gauguin, and van Gogh), which was organized by Fry for the Grafton Gallery in London in 1910; it introduced modern art to the British public, and modernist art discourse to Americans.

According to Fry, aesthetic experience would be available only to those schooled in the mechanics of form and technique. However, form itself was not a property of matter, but a matter of "independent, self-contained artistic constructions" brought about through relational thinking. Furthermore, Fry insisted on "a dialogue between pure intellectual construction and reaction to natural phenomena as the inspiration for the work of art." As Falkenheim has noted, "The 'transformation' of perceptual material into digested aesthetically satisfy-
ing form is what really preoccupied him in his aesthetic speculations."^{29} Beginning with The Steerage, Stieglitz photographed ships and industrial subjects according to parallel principles, derived not from reading Fry, but through his own scientific study and orientation.

A brief essay published in Camera Work in 1910, "My Drawings" by the Polish sculptor Elie Nadelman, constituted a consideration of form from a similar post-materialist standpoint. Probably introduced to Nadelman's modernist abstract sculptures at the Galérié Druet in Paris through Leo and Gertrude Stein, Stieglitz undoubtedly admired their frank and fluid presentation of nudity, volumetric coherence, and curvilinear excavations of space, concerns he also was exploring in his own work at this time.\(^{30}\) The essay he printed by Nadelman located form not in objects scrutinized, then interpreted, by artists, but in the conceptions of artists independent of their models. Nadelman wrote that, "The subject of any work of art [should be]...nothing but a pretext for creating significant form, relations of forms which create a new life that has nothing to do with life in nature, a life from which art is born, and from which spring[s] style and unity."\(^{31}\) Nadelman's theories echo Mach's concept of the thought experiment (the adaptation of thoughts to thoughts), to which Stieglitz subscribed.

It will be recalled that Cubist theory was known to
Stieglitz—through the critic Marius de Zayas—and that it was congruent with Stieglitz’s equally advanced ideas. (Stieglitz made one of the first pronouncements on simultaneity in 1907.)

For the French Cubist theorists, among whom were de Zayas’s chief sources Gleizes and Metzinger, surface appearances were mere pretexts for artistic activity. They claimed that creativity consisted not in limning natural fact, but in discovering relationships that subsumed those facts in a novel, conceptual construct. Gleizes and Metzinger were interested in mathematics, not as a literal model for painting, but as an abstract way of thinking predicated on relationships. For example, non-Euclidean geometries and the fourth dimension were brought into their criticism because following Poincaré, these critics believed that novel mathematical theories, like Picasso’s painting, described reality differently from standard norms, but so convincingly that they should be considered equally true. Cubist theory, like Stieglitz’s, stressed conceptual processes and validated the reality of conceptually-produced objects.32

De Zayas, Stieglitz’s key writer in 1912 and 1913 and his chief source for developments in French art from 1911 to 1914, also developed an avant-garde, conceptual notion of form related to Cubist theory—specifically that of Metzinger, whose work at the 1910 Salon d’Automne
in Paris was the Mexican’s first introduction to that movement, and whose book *Du Cubisme* (written with Albert Gleizes) de Zayas cited in one of his texts. Indeed, in his 1911 essay on Picasso de Zayas claimed that

> Each one of his paintings is the coefficient of the impressions that form has performed in his spirit, and in these paintings the public must see the realization of an artistic ideal, and must judge them by the abstract sensation they produce, without trying to look for the factors that entered into the composition of the final result.

According to Metzinger and Gleizes:

> The artist, having discerned a form which presents a certain intensity of analogy with his pre-existing idea, prefers it to other forms, and consequently...he endeavors to enclose the quality of this form (the unmeasurable sum of the affinities perceived between the visible manifestation and the tendency of his mind) in a symbol likely to affect others. When he succeeds he forces the crowd, confronted by his integrated plastic consciousness, to adopt the same relationship he established with nature.

The early twentieth century aestheticians and philosophers who limned avant-garde theories of experience and form should not be considered sources for Alfred Stieglitz, but equally forward-thinking pioneers navigating the same waters. Stieglitz was unique, however, in creating an aesthetic that incorporated painting, sculpture, photography, and writing as artifacts of a new vision.

It was Stieglitz’s notion of conceptual and abstract photography which most directly helped de Zayas describe Picasso’s drawings and paintings both conceptu-
ally and abstractly, and on a critical level equal to
Gleizes and Metzinger's. As were Gleizes, Metzinger and
Fry, by 1913 Stieglitz was a major spokesman for abstract
formalism and a patron of those (such as Nadelman and de
Zayas) whose ideas corroborated and expanded upon his.
As were James and Dewey, by 1907 Stieglitz was a partisan
of anti-systematic, pro-experiential living and creation.
He later admitted that he printed de Zayas's essays
precisely because they represented not final, prescrip-
tive statements, but relational and process-oriented
thinking, elaborating a critical perspective very like
his own.36

Marius de Zayas's elevation to the position of
Stieglitz's major critic confirmed just how powerfully
avant-garde thought, predicated on the unity of art and
science, had penetrated the "spirit" of "291" by 1912-13.
It proved, as de Zayas and Paul Haviland wrote in 1913,
that Alfred Stieglitz's "291" had indeed become "a
laboratory" where the work presented was "impartially
analyzed, dissected, put through the severest tests," all
for the purpose of "finding out the truth whatever that
truth may be and whatever results it may have."37
NOTES

1. "Thoroughly Unprepared," pp. 252-53. At this time Stieglitz was dividing his time between his professional obligations at the photoengraving firm and amateur photography. He worked himself into a state of nervous exhaustion and developed both pneumonia and kidney problems.

2. "Writings and Conversations." p. 78.


4. Ibid., pp. 7, 159, 236, 18.

5. Ibid., pp. 153-54.


7. For example, Frank Thilly of Princeton University wrote in 1905:

Yes, the real fact of our life is the fact of our will. The reality directly known to us is the world of our desires, the world of our instincts....Life is essentially a striving for a surplus of power....And this will for power, for more power, this intense, overflowing, bubbling, healthy, exuberant instinct is good: Alles Gute ist Instinkt.

"A time will come," says Nietzsche, "in which we shall no longer consider the masses, but again the individuals, who form a kind of bridge over the seething stream of becoming. These individuals are not continuers of a process; they live timeless-contemporaneous lives..." (Frank Thilly, "The Philosophy of Friedrich Nietzsche," Popular Science Monthly, 1905, pp. 709, 710).
8. These phrases are from Thilly, citing Nietzsche, pp. 709 and 710.


11. Another photographer whom Stieglitz admired at this time was Karl Struss, according to Homer "one of the first of the talented young workers to emerge from the White-Coburn tradition" (Homer, *Photo-Secession*, p. 149). Having observed his development for some time, in 1910 Stieglitz deemed him a new discovery, featuring twelve of his works at the Albright show in Buffalo, then publishing a folio of his prints in an album similar in design to *Camera Work*. Struss's images, for example *Pennsylvania Station* (1911), recall Coburn's in subject, but they are even more similar to Evans's in that they include architectural interiors, captured from unconventional angles so that diagonals intersect with verticals, and spatial tunnels are counteracted by forceful linear armatures. What differentiates them from Evans's work is their modern subject matter, namely the avenues, construction sites and grand interiors of early twentieth century Manhattan. As he was photographing similar subjects from a similar perspective, Stieglitz believed Struss was a photographer to watch and promote. It comes as no surprise that Struss, like Coburn and Stieglitz, was a photochemist of no mean accomplishments. In 1909 he designed the Struss Pictorial Lens, putting it on the commercial market a few years later.

12. This interrelationship is explored fully in Blackmore: James and Mach, pp. 55, 126-28, 176-77, 202; Dewey and Mach, p. 175; and Russell and Mach, p. 200.


15. Copleston, 8:332, 333.


17. Hartmann's essay appeared in the April 1912 issue of *Camera Work* and Stein's two word portraits were featured in a "Special Number" of August 1912.

(June 1913):6. Here Dodge was referring to Stein's literature, but her comment is equally apropos to Hartmann's, which she undoubtedly also knew.


22. Copleston, 8:449.

23. According to Greenough, Stieglitz read Russell's The Future of Science and J. B. S. Haldane's Science in the Future (both 1924) (interview by author, July 1989). In addition to these two authors, Lowe lists the psychologists Havelock Ellis and Freud (p. 211).

24. In their Paris apartment the elder Stein maintained a popular salon which prompted Stieglitz, Steichen, Max Weber, and other American artists to view the Stein collection of modern art and to meet the Steins' friends, the Parisian artists themselves.


Berenson's appeal to psychology suggests that he was influenced by German physiological psychology and possibly specifically the nativist theories of Ewald Hering. Hering was a perceptual psychologist in Leipzig who achieved preeminence in the 1860s for his five-part Beiträge zur Physiologie (1861-64). In this book he based his nativism on that of Immanuel Kant, for whom space was an inborn intuition. Hering believed, like Berenson after him, that depth perception was innate; it was a faculty, a "tactile imagination," inherent in each point of the retina. Furthermore, Hering placed sensations in consciousness and relied upon the description of conscious phenomena as a basic goal of psychology (Boring, History of Experimental Psychology, pp. 352-55).


27. In mathematical terms, a coefficient is "a number or algebraic symbol prefixed as a multiplier to a variable or unknown quantity" (Webster's New World Dictionary, second college ed., s. v., "coefficient," p.

29. Falkenheim, pp. 89, 90.

30. Stieglitz wanted to show a group of Nadelman's drawings in "291" during the 1910-11 season, but they were recalled for a London exhibition before Stieglitz's could take place. He persisted, however, and obtained a fourteen sculptures and ten drawings for a "291" show held December 8, 1915 to January 19, 1916.


32. Undeniably Marius de Zayas was influenced by conceptual art as the Cubists described it. But his understanding of these European art ideas was not hatched overnight—he had been in Paris only a few months when he wrote the Picasso essay, and it was not until 1913 that he actually cited Metzinger and Gleizes. One likely source was Berenson, whose writings Leo Stein or Stieglitz could have lent him. Both used the word "coefficient" in a mathematical sense, that is to indicate multiplication or expansion of an unknown quantity—for Berenson, reality and for de Zayas, an impression. But his most likely source was Stieglitz himself, as shown in his letters to the latter late in 1910.


According to Mark Roskill, Gleizes' contribution to *Du Cubisme* was the idea of a French tradition in painting of which Cubism was the latest manifestation, along with the formalist idea of color and surface organization. Metzinger, on the other hand, "was more attuned to philosophic thinking and to science alongside this, under the influence of Mercereau, Jules Romain and Henri Bergson" (Roskill, p. 25). Knowing that de Zayas shared an interest in science with Metzinger leads me to believe that he would be more drawn to Metzinger than Gleizes. Since he mentioned Metzinger's theories as well as his paintings in his October 28, 1910 letter to Stieglitz, cited below, he probably read his "Note on Painting," published in *Pan'*s October-November 1910 issue. There
the French painter stated:

Picasso does not deny the object, he illuminates it with his intelligence and feeling. With visual perceptions he combines tactile perceptions. He tests, understands, organizes: the picture is not to be a transposition or a diagram, in it we are to contemplate the sensible and living equivalent of an idea, a total image....Picasso brings us a material account of their real life in the mind—he lays out a free, mobile perspective...(Metzinger, "Note sur la peinture," Pan, October-November 1910, pp. 649-51, trans. Jonathan Griffin, in Edward F. Fry, Cubism [London: Thames and Hudson Ltd., 1978], p. 60).


36. "It ["The Evolution of Form—Introduction"] may possibly lead to the publication in Camera Work of many articles on subjects apparently alien to Art but in reality closely related, as all manifestations of the evolution of man are closely related, while the understanding of all is necessary to the understanding of any one of them" (Stieglitz, introduction to "The Evolution of Form—Introduction," by Marius de Zayas, CW no. 41 [January 1913]:44).

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