REVEALING NATURE’S BLANK SPACES

THE RUSSIAN LANDSCAPE PAINTINGS OF ARKHIP IVANOVICH KUINDZHI
(1842-1910)

AND

THE SCIENCE OF DMITRI IVANOVICH MENDELEEVEV
(1834-1907)

A Thesis

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By

Elizabeth Stewart Burns, M.B.A, B.S.F.S.

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The Ohio State University
1999

Master’s Examination Committee:

Dr. Myroslava M. Mudrak, Adviser

Dr. Barbara Groseclose

Approved by

[Signature]

Adviser
Department of History of Art
ABSTRACT

This thesis seeks to re-interpret the landscape paintings of Russian-trained, Ukrainian artist, Arkhip Ivanovich Kuindzhi (1842-1910), through the lens of science and the artist's friendship with the famous Russian chemist and founder of the periodic table, Dmitri Ivanovich Mendeleev (1837-1907). Unusual for their intense luminosity, crude forms, and startlingly bold color, Kuindzhi's paintings have been favorably labeled as awe-inspiring works anticipating the promising future of decorative art and new romanticism. Derogatorily, the works have gained a reputation as the immature and crude renditions of an untrained primitive. This thesis proposes that, more accurately, Kuindzhi's style was overriding the result of a tenacious pursuit to paint the often-invisible chemical and physical structure of nature. Kuindzhi was less concerned with academic methods of painting and the imitation of Western European styles and, more originally, interested in experimenting with paint to visually reconcile the forces of art and science.

Kuindzhi emerges from this new analysis as an artist of important transitional stature, not only serving to unite art and science, but providing an important link between traditional Russian landscape painting of the nineteenth century and the experiments of avant-garde Russian and Western European painters of the twentieth century. At the crossroads of centuries and on the cusp of great scientific advances from the invention of the x-ray to the dawning of the atomic age, and the explosion of artistic movements from
cubism to suprematism, Kuindzhi’s work is easily misread or forgotten. It is science that brings the significance of his paintings into focus, giving them constancy and consistency through which they can be re-interpreted within the Western art historical paradigm.
DEDICATED TO MIKE, MOM, AND MADDIE
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VITA

November 27, 1965.......................... Born
Cincinnati, Ohio

1987.................................Study Abroad, St. Petersburg, Russia

1988.................................B.S.F.S. Georgetown University
Edmund A. Walsh School of Foreign Service
Washington, DC

1991.................................M.B.A.
The Ohio State University

1987-1989..........................Exhibitions Coordinator
The Trust for Museum Exhibitions
Washington, DC

1990-1991..........................Graduate Administrative Associate,
Department of Development and
Communications
Wexner Center for the Arts
The Ohio State University

1991-1992..........................Associate Director of Development
Opera Colorado
Denver, Colorado

1993-1995..........................Assistant Director
CARE Foundation, Midwest Region
Chicago, Illinois

FIELDS OF STUDY

Major Field: History of Art
Studies primarily in Russian art and secondarily in American art, with a specialization in
landscape painting of the late nineteenth and early twentieth centuries.
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PREFACE

A Note on, Translation, Orthography and Transliteration

The translation of all research materials from the Russian language into the English language was entirely executed by the author of this thesis. In a few instances as noted in the text, translations of excerpts from Russian materials discovered in the curatorial files of The Metropolitan Museum of Art were utilized. The transliteration of the Cyrillic alphabet to English names and titles follows the system of U.S. Board and Geographic Names. All quoted and bibliographic material was altered to meet this system for the purpose of consistency. For example, Kuinji was changed to Kuindzhi and Mendeleyev was changed to Mendeleev. Further, anglicized spellings were also altered for consistency, e.g., colour was changed to color.

To bring the spelling and translation of proper names current since the dissolution of the Soviet Union, the ethnic origin of key words and terms was considered. For example, the word Dnepr in the title of the work Moonlit Night on the Dnepr is more properly transliterated as Dnipro, which designates the Ukrainian origin of the name of this river. The Russian word luchizm is translated into English as rayism instead of the previously utilized French version of rayonism. Further, all soft signs are omitted from the text in order to simplify the look and readability of the text, e.g., izdatel'stvo, is simply izdatelstvo.
All dates are consistent with our Gregorian calendar unless otherwise noted.

Names of all artistic movements and periods, e.g., impressionism, are referred to in the lower case and quoted material has been altered accordingly.

Finally, most of Kuindzhi’s works have numerous titles, as translations vary and descriptive words were added to them over time. Titles were examined for the accuracy of their translation. Staying as close as possible to Kuindzhi’s original titles was the objective of this author and where a change or discrepancy is pertinent to the text a footnote has been added. The author did, however, knowingly use an extended version of the titles of two works, Moonlit Night on the Dnipro was used in place Moonlit Night, and Red Sunset on the Dnipro was adopted instead of Red Sunset. The river name was not original to the titles, but these better known Kuindzhi works are recognized internationally by their later titles.
CHAPTER 1

Introduction

The preeminent American scholar of Russian art, John E. Bowlt, referred to Arkhip Ivanovich Kuindzhi’s Red Sunset on the Dnipro (1905-1908) [fig. 1], as “a remarkable and important work,” for Russian painting of the late nineteenth and early twentieth centuries.\(^1\) It has also been called the artist’s last major work.\(^2\) This painting, executed at the end of Kuindzhi’s life, is perhaps a fitting place to begin a thesis devoted to drawing new conclusions about an ensemble of Kuindzhi’s key paintings. Found in the artist’s studio after his death, Red Sunset on the Dnipro (1905-1908), along with Kuindzhi’s other signature works from 1870-1908, illustrates the culmination of the artist’s dual interests in painting and science. This investigation and discovery of science as Kuindzhi’s primary inspiration to paint will demonstrate how Kuindzhi anticipated and participated in both Russian and Western European avant-garde painting of the early twentieth century.

\(^1\)John E. Bowlt, “A Russian Luminist School? Arkhip Kuindzhi’s Red Sunset on the Dnipro,” Metropolitan Museum Journal, vol. 10 (1975), 119. This was the first English publication written exclusively on Kuindzhi. John Bowlt remains the only scholar to write about Kuindzhi in English except for a brief summary in Vitaly S. Manin, Kuindzhi (Leningrad: Khudozhnik RSFSR, 1990), 152-155.

\(^2\)The 1980 Metropolitan Museum of Art text label for Red Sunset on the Dnipro cited this painting as “Kuindzhi’s last major work.” Several of the artist’s later works have a completion date of 1908, but no works known to this author were dated after this time. Most of the works completed in 1908 were smaller, more intimate compositions. The then-titled Red Sunset was found in Kuindzhi’s studio after his death in 1910. The Metropolitan acquired Red Sunset on the Dnipro from a private collector in 1974 and it is now housed in the storeroom of the museum.
A rather large work for Kuindzhi, *Red Sunset on the Dnipro* (1905-1908) ostensibly illustrates a bright yellow sun surrounded, but not enveloped by a cumulous cloud in a red sky at sunset. Vitaly Manin, Russia’s Kuindzhi scholar, argued that while he believed that Kuindzhi’s red sunset paintings were largely reflective of the artist’s emotions, he also hypothesized that they were a response to the generally melancholic social mood of the times. He described them as follows:

Several landscapes and sunsets can be perceived metaphorically – as a quiet passing away of nature, as a completion of the natural cycle of life. Such elegiac moods were characteristic of social consciousness of the turn of the century; they had their parallels in poetry, philosophy and music.

Manin linked Kuindzhi’s paintings to a turn-of-the-century malaise, a macabre anxiety about the future and a nostalgic longing for the past that was reflected throughout the culture of Russia and much of the world. Indeed, Kuindzhi faced both his own mortality and the social unrest of Russia as he painted *Red Sunset on the Dnipro* (1905-1908). His close friend and internationally acclaimed scientist, Dmitri Ivanovich Mendeleev, died in 1907 and the artist’s own weakened and diseased heart failed him just two years after completing the painting. Further, since Kuindzhi “left almost no diaries, correspondence or notes,” a case built upon the broad context of his life could perhaps just as likely suggest a political impetus for the painting. Following on the heels of

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3 *Red Sunset on the Dnipro* (H 134.6 x W 188 cm.) is a large work relative to Kuindzhi’s other paintings, a fact that is striking to the viewer familiar with Kuindzhi’s more intimate compositions. Cf. dimensions in “List of Illustrations,” vii.

4 A sketch for *Red Sunset on the Dnipro* is in the collection of The State Russian Museum, St. Petersburg and other sketches of the same subject are believed to have existed according to notes in the curatorial files of the Metropolitan Museum of Art.


Russia’s Revolution of 1905, or “Bloody Sunday,” when police fired upon a peaceful demonstration of workers, killing 130 persons, Red Sunset on the Dnipro (1905-1908) might also mirror the social and political despair of turn-of-the-century Russia.7

Yet, as Kuindzhi’s works are more closely examined, it is obvious that the artist was most intently concerned with the glorification of nature, not the romanticism or symbolism popularly associated with images of its reverence or decay. Through a specific examination of Kuindzhi’s relationship with Mendeleev, his engagement with science and, of course his paintings, it becomes apparent that Kuindzhi was not inclined to paint the political, social, or even personal conditions of a particular place and time. Kuindzhi preferred integrating advances in science and in art to communicate a more universal message. Therefore, contrary to Manin’s supposition, Kuindzhi’s sunset is not the proverbial symbol of death and despair as such metaphors would be read in most art historical literature, but an exuberant celebration of the discoveries of science and the richness of painting. In this, Kuindzhi occupies a position outside the usual narrative on the historical development of Russian painting of the nineteenth century. Indeed, as this thesis reveals, his was a completely modernist stance.

In many ways, Red Sunset on the Dnipro (1905–1908) highlights the artist’s modernist stance by representing his fascinating attempt to illustrate the conflux of his artistic and scientific interests. Still pleasing to the viewer today, even with its darkened surface, the painting retains an overall luminosity that gives brilliance to its rather nondescript foreground of trees, low bushes and scrub. The red-orange glow of the sun not only colors the sky and reflects off the water, but the organic material of the

7For additional facts relating to “Bloody Sunday,” see Nicholas V. Riasanovsky, A History of
foreground emanates with the glow as well as if it had its own reflective properties or
inner radiance. The giant cumulous cloud that surrounds the sun dominates the canvas
and serves as the central compositional element of the painting. The foreground greenery
is clustered and simplified in such a manner that it mimics this cloud formation above.
The light of the sun and the shape of the atmospheric elements pervade and invade both
the heavenly and earthly aspects of this landscape creating a uniformity of design in both
the elements of the earth and sky. Kuindzhi used this technique to represent the
similarity of the chemical composition of earth and cosmos. As scientists learned more
about the composition of the cosmos at the turn of the century, they increasingly
discovered that the earth is but a small part of a larger universe created from the same
organic materials. Leonard Shlain, author of *Art and Physics: Parallel Visions in Space,*
*Light and Time,* summarized that in the early 1860s, the German scientist Gustav
Kirchoff, “altered our knowledge . . . and discovered that the sun was made up of
constituent elements of the periodic table identical to those that made the earth. Contrary
to previous speculations, he could find nothing alien ninety-three million miles away.”8
This symbiotic relationship between earth and cosmos illustrated in Kuindzhi’s canvas is
substantiated and expanded in Mendeleev’s lectures and writings. When Mendeleev
lectured to The Royal Society in London in 1889, he specifically stated:
The invisible world of chemical changes is closely analogous to the visible world
of the heavenly bodies, since our atoms form distinct portions of an invisible
world, [just] as planets, satellites, and comets form distinct portions of the

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astronomer’s universe; our atoms may therefore be likened to the solar system.  

Kuindzhi illustrated in brilliant color and definitive form the invisible world of chemistry and its role as a previously hidden unifier of the visible and invisible, of earth and cosmos. He visually depicted the likeness that the earth’s atoms shared with the solar system. He did not privilege what is typically considered the concrete and usually organic elements of the landscape like the trees, but emphasized how the less obvious subjects of light and atmosphere deserved equal emphasis because of their communal chemical composition with organic subject matter.

The significance of Kuindzhi’s interest in the artistic depiction of nature’s invisible structure is its philosophical connection to future movements in modern art. As this thesis concludes, Kuindzhi’s desire to unite art and nature, to depict and emphasize nature’s hidden structure, specifically shares a kinship with the art and ideas of Russian artist Naum Gabo as expressed in his *Realistic Manifesto* (1920). More broadly, Kuindzhi’s focus on the unseen can be linked to the cubists of Western Europe. Just as Pablo Picasso (1881-1973) and Marcel Duchamp (1887-1968) were inspired to portray invisible realities made tangible by the invention of the x-ray in 1895, Kuindzhi used the knowledge of the scientific advances of his time to give the invisible aspects of nature - specifically the color of light and the composition of the atmosphere - form and recognition.  

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Although Manin did not claim that Kuindzhi painted in response to Mendeleev, in referring to *Red Sunset on the Dniпро* (1905-1908), he did recognize that Kuindzhi was consumed with a perhaps unwise fascination with science when he stated, "Kuindzhi . . . appears more like the observing naturalist than a demanding artist."\(^\text{11}\) Manin believed that Kuindzhi was more interested in capturing nature’s effects than he was in the art of painting. Actually, Kuindzhi did not paint directly from nature as an observing naturalist would, he painted from memories of his observances as they were filtered through his mind.\(^\text{12}\) His paintings, therefore, have a more subjective quality than the objective and exacting nature of scientific illustration. Further, it has been said that Kuindzhi compromised his integrity as an artist in favor of his interest in science when he let his experimental interest in the mixing of pigments override his concern for the preservation of his paintings. While it is not known what he added to his pigments, it is fairly obvious from their serious fading that Kuindzhi added unstable ingredients to his paint mixtures. His fellow artist, Ivan Nikolaevich Kramskoi (1837-1887), wrote in a letter to art critic, Aleksei Surovin,

The following worries me: will that combination of paints which the artist has discovered last for very long? Perhaps (consciously or unconsciously – it doesn’t matter) Kuindzhi put paints together which are organically antagonistic to each


\(^\text{12}\)Dmitri V. Sarabianov, *Russian Art from Neoclassicism to the Avant Garde: 1800-1917* (New York: Harry N. Abrams, Inc, 1990), 167. Sarabianov noted that Kuindzhi “composed his paintings from memory without recourse to studies in sketches he might have made beforehand.”
other and which will fade out or change after a certain time, and will disintegrate to the point where our descendants will shrug their shoulders, perplexed...\textsuperscript{13}

Moreover, as is repeatedly apparent throughout this thesis, Manin was often adept at identifying some of the unusual characteristics of Kuindzhi’s paintings, but he failed to understand Kuindzhi’s interest in science as the key to interpreting the progressive nature of his work.

Amidst the creative process of inventing his own style of painting, Kuindzhi also had to contend with the pressure of being a young artist struggling for acceptance. Consequently, from 1874-1879, following his departure from the Academy, Kuindzhi joined the prevailing organization of artists at the time, the \textit{Peredvizhniki}. During this time, Kuindzhi suppressed his scientific interests as they related to painterly innovation in order to conform to the \textit{Peredvizhniki}'s demands for academic style and socially conscious narrations. As a result, Kuindzhi created the most unimaginative works in his oeuvre including \textit{Deserted Village} (1874) [fig. 2] and \textit{The Chumak Road} (1875). These barren landscapes are deprived of Kuindzhi’s magical ability to heighten nature’s effects. Fortunately for Kuindzhi, his period of conformity was short-lived and he fairly readily established his own style independent of professional pressures. By the time he paints \textit{Moonlit Night on the Dnipro} (1880) [fig. 3], Kuindzhi’s compositions are not only inspired by his passion to depict the glorious moments of nature, but they are also harmoniously balanced and designed by a mature and forward-looking artist. This composition is artistically innovative, providing aerial perspective, space, and simplicity of line typically associated with works decades beyond. But his admirers, unaware of the

\textsuperscript{13}Ivan Nikolaevich Kramskoi to A. Surovin, November 15, 1880, \textit{Ivan Nikolaevich Kramskoi. Pisma v dvuh tomakh} vol. 2 (Moscow, 1966), 54 in Bowlt, “The Russian Luminist School, The Work
prophetic qualities of Kuindzhi’s painting style, were still most impressed by his uncanny ability to capture nature in paint. Upon viewing *Moonlit Night on the Dnipro* (1880), Surovin commented that “it is not a painting, but nature herself...” Kuindzhi passionately and deliberately experimented with painting methods and styles until he ultimately reached a mature style indicative of his ability to balance his love of the plastic and chemical properties of paint with his desire to depict nature’s scientific structure.

Again, it may be *Red Sunset on the Dnipro* (1905-1908) that most completely achieves Kuindzhi’s goals as a painter. Not only did this painting illustrate a mission to balance the earthly and cosmic elements of nature, but it demonstrated the use of striking horizontals and diagonals that were especially indicative of more minimalist compositions of the future. The obvious horizontals of the river, horizon and base of the cloud are exaggerated by the extensive width of the work. Illuminated lines of horizontal clouds highlight the background of the composition and dissect the painting. The luminous rays of the sun thrust vertically upward, intersecting with the highlighted diagonal cloud formations. Such formal compositional elements represented Kuindzhi’s modern occupation with an economic, yet powerful use of line, another aspect of his work that significantly differentiates Kuindzhi from his nineteenth-century counterparts by sharply contrasting his style with the myopically academic and prevalingly narrative or lyrical tendencies of Russian landscape painting. It is in this spirit that Kuindzhi’s...
painting style again looked ahead to the avant-garde. His use of strong intersecting rays of light foreshadowed the rayist paintings of Mikhail Fedorovich Larionov (1881-1964), while his minimalist use of strong line formally anticipated the avant-garde works of suprematist painter Kazimir Severinovich Malevich (1878-1935).

The significance for the future of the complexities of Kuindzhi’s seemingly quaint and simple landscapes has been overlooked until now. The renowned Russian realist, Ilya Efimovich Repin (1844-1930), did, however, recognize Kuindzhi’s genius in 1913:

His light cast a spell. He made the power of light, and the illusions that spring from it, the goal of his painting. Naturally, the basis for this choice lay in himself, in his phenomenal, inborn originality. . . . But his genius stood entirely in harmony with the general movement of the times, and encompassed instinctively all the changes and developments in the art of his era.¹⁶

By projecting Repin’s remarks one step further, this thesis encompasses Kuindzhi’s achievements in artistic innovation that were responsible for anticipating many of the artistic movements of the next generation.

It is important to be acutely aware that not all opinions of Kuindzhi’s creativity were as favorable as Repin’s. In fact, while Kuindzhi may have enjoyed widespread popularity with the public, his reception by contemporaneous critics and colleagues and contemporary scholars remains inconsistent and reflects a continued inability to achieve a correct and comprehensive understanding of this artist’s works. Although contemporaneous art critic, artist, and leader of the Mir Iskusstvo [World of Art] movement,¹⁷ Alexandre Benois (1870-1960), called Kuindzhi an impressionist, he did so

¹⁶Excerpted from a memo in the curatorial files of The Metropolitan Museum of Art, New York.

¹⁷Aesthetic problems and resolutions,” as reasons for the art being considered limited and backward. Kuindzhi clearly broke with the narrative constraints in order to favor a more plastic solution to the challenges of painting. Especially see “The Russian Luminist School: The Work of Arkhip Kuindzhi,” 10-11.
with reservation for he considered Kuindzhi’s work crude and immature. Kuindzhi’s “phenomenal, inborn originality” did not impress Benois whose profound influence and prolific criticisms strongly influenced Russian art history well into the mid-twentieth century. Benois did not even believe that Kuindzhi had a measurable effect on his famous students, claiming that his students, among them Arkady Aleksandрович Rylov and Nikolai Stepanovich Roerich, “have all, however, gone far away from the precepts of their master.” This would not be surprising considering the fact that Kuindzhi encouraged his students to pursue their individuality and not to copy past artists’ methods and styles. Generally speaking, Benois sought synthesis and cohesion in the progression of artistic styles and lamented that Russian art seemed to lack such qualities. He did not believe that Russian art had anything to learn from Kuindzhi, because the only way for

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17 The *Mir Iskusstvo* or World of Art movement influenced Russian art from 1898 to roughly 1924, although its first ten years represented its most influential phase. Generally speaking, the group looked to the past in search of an acceptable form of Russian art, in many cases, literally clinging to the neoclassicism of their many famous-artist fathers. They are primarily known for the publication of an aesthetic journal and the organization of painting exhibitions. As will become apparent in this thesis, their ideas were important as they served to inhibit the recognition of Kuindzhi as a progressive artist. For a more detailed account of this group and their influence, see Sarabianov, *Russian Art*, 222-224.

18 Alexandre Benois, *The Russian School of Painting* (St. Petersburg, 1902), 158.


20 Arkady Aleksandrovich Rylov (1870-1939) was a student of Kuindzhi’s. He went on to be recognized as an esteemed member of the Arts of the Russian Soviet Federal Socialist Republic. His landscape compositions were accepted by the establishment for their supposed adoration of the motherland, but his obsession with capturing the effect of wind rustling in the trees and allowing it to dominate his painting, *The Green Noise* (1919), illustrates the influence of Kuindzhi’s emphasis on nature’s effects.

21 Nikolai Stepanovich Roerich (1847-1947), a student of Kuindzhi’s, did not become a professional landscape painter, but a painter of ancient Slavic history. His landscape imagery, however, does mimic some of Kuindzhi’s mountain landscapes of the Caucasus, which are outside the scope of this thesis. He eventually moved to New York where he enjoyed a strong following in his adopted country.

22 Benois, *The Russian School of Painting*, 159.
the Russian artist to achieve greatness was to revert to the academic conventions of neoclassicism of the early-mid nineteenth century copied from Western Europe.

The first encompassing work documenting modern art in Russia to appear in the West, *The Great Experiment: Russian Art 1863-1922*, written by Camilla Gray in 1962, no doubt carried forward some of Benois’ dismissal of Kuindzhi for it did not even mention the artist. More recent art historical scholarship placed Kuindzhi’s work conveniently, but not always comfortably within “schools.” For instance, Manin labeled him as new romantic and Bowlt suggested that he was a Russian luminist.\(^{23}\) Overall, in contemporary Western art history, there seems to be a tendency to universally regard Russian landscape painting prior to the explosion of the avant-garde painters of the early twentieth century as examples of unimaginative, narrative painting of an outdated academic style. This is notably obvious by the lack of published material devoted to non-stereotypical, varying or imaginative investigations of Russian landscape art of Kuindzhi’s time. Bowlt was particularly aware of this problem when he stated:

A peculiar conjunction of circumstances in Western scholarship of Russian art, not least the disproportionate emphasis on the Russian avant-garde and the traditional belief that Russian painting of the later nineteenth century was totally didactic and ‘literary,’ has contributed to a general ignorance, or at best, inaccurate conception of Russian realism and naturalism, particularly the period ca. 1860-1890.\(^{24}\)

Consequently, Kuindzhi’s art languishes somewhere in-between Russia’s “great” movements in art, between neoclassicism and the avant-garde, and often uncomfortably aligned with the Russian realists. Perhaps the categorization of Kuindzhi in the 1986

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\(^{23}\)Manin and Bowlt will often provide opposing views regarding the interpretation of Kuindzhi’s life and works.

exhibition catalogue *Russia: The Land, The People* as “somewhat apart and alone” is more accurate than forcing him to fit into an artificial school. This characterization, however, does not enlighten the student of Kuindzhi’s art as to the impetus behind its unique painting qualities. It is only when the effect of science on Kuindzhi’s style is examined that his art begins to assume a more responsible and sensible place in the history of Russian art. Only through the lens of science can Kuindzhi’s paintings be seen as a link between Russian landscape painting of the late nineteenth century and the avant-garde experiments in art of the twentieth century.

It is not perchance that in 1860, about the time that Kuindzhi began to paint, science too had begun its own transformation:

> From antiquity to the 1860s, all scientific discoveries of the moment were based upon sharp-edge black-and-white numbers and measurable quantities. Then, within the next sixty years, a few physicists stared in childlike wonder at the spectrum of colors and discovered the following: The composition of the stars; the fusion of magnetism, electricity, and light; the genesis of quantum mechanics; the structure of the atom; and the expansion of the universe. These five discoveries rank among the most profound insights in the history of science.  

Kuindzhi’s artistic developments paralleled these marvelously transformative observations and discoveries in science by treating light and atmosphere as no Russian artist before dared to even imagine. This thesis provides a backdrop for consideration of scientific development in Kuindzhi’s art that stemmed from an intimate friendship

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26 Shlain, *Art and Physics*, 179. As chemistry and physics are often spoken of in tandem in this thesis, it is important to note that Mendeleev was most interested in physical chemistry, specifically the cross-over characteristics of chemistry and physics, as will become obvious in his lectures and speeches quoted here. Shlain also note that “Chemistry is anchored to the rock of physics as all hard sciences are.” 17.
between Kuindzhi and Mendeleev. A touchstone for these bold assumptions about the prophetic qualities of Kuindzhi’s work is a sketch that captured a private moment of the artist and scientist playing chess in Mendeleev’s private study [fig. 4]. In Mendeleev, Kuindzhi found an unusual and forward-looking source of artistic inspiration that he recorded in his paintings. In Kuindzhi, Mendeleev discovered a relationship that allowed him to explore one of his many philosophical interests, the parallel development of landscape painting and the natural sciences. Fortunately, for this study, Mendeleev recorded his inspired impressions of Kuindzhi’s painting, *Moonlit Night on the Dnipro* (1880), in his *Pred kartinoyu A.I. Kuindzhi* [Standing before Kuindzhi’s painting], an editorial in the St. Petersburg newspaper, *Golos* [Voice], which was published on November 13, 1880. The fortuitous pairing of these two men provided an exchange of ideas between science and art that is mirrored in Kuindzhi’s paintings and Mendeleev’s lectures and writings. The value in examining shared thoughts between these two men of the late nineteenth century is that it establishes an early and uniquely Russian foundation through which to observe the emerging confluence in modern art and science. Hopefully, this investigation also gives Kuindzhi’s previously neglected or misunderstood paintings a deserved re-awakening.
CHAPTER 2

Kindred Spirits: Kuindzhi and Mendeleev
Art and Science

A visual interpretation of Kuindzhi's use of color, form, stroke and composition is critical to understanding the artist's work, not only because of its richly expressive qualities of his work, but also because the paintings are largely left alone to speak for the artist. As the different histories of Kuindzhi's life reveal, "The facts of Kuindzhi's life which have reached us are few and not always precise."¹ Even the exact date of his birth is unknown. Most scholars, however, date Kuindzhi's birth to the year, 1842, in Mariupol, Ukraine where he was born to a poor family of Greek origin. He was largely self-taught because his parents did not have the resources to finance his education. As a young boy, Kuindzhi herded sheep on the steppes of the Ukraine, perhaps imprinting images of his beloved landscape for later recall. Sometime during the 1850s and 1860s Kuindzhi reportedly worked in the studio of the famous Russian sea painter, Ivan Konstantinovich Aivazovsky.² This relationship may not have been a transformative one for Kuindzhi, for as noted by Bovlt, "according to some sources he was engaged merely

¹I. Romanycheva, Kuindzhi: From the Art of Soviet Museums (Moscow: Aurora Publishers, 1975), unpaginated.

²Ivan Konstantinovich Aivazovsky (1817-1910) was a prolific painter of colorful, dramatic seascapes. Russian art historians seeking a source for Kuindzhi's own drama and color expand upon his supposed association with Aivazovsky. The similarities between the two artist are tenuous, for Kuindzhi did not admire Aivazovsky's rapid production of repeat imagery, but sought a more serious and in depth approach to painting which this thesis proposes he found by relating his work to science.
to mix paints and never received formal instruction from the master."³ Further, Kuindzhi, who was known to spend years - even up to a decade - working and reworking his paintings supposedly “smile[d] at the slight of hand which could paint a storm at sea in an hour [and] fifty-five minutes,” a feat for which Aivazovsky was well known.⁴ On the contrary, Manin, insisted that Kuindzhi indeed trained as an apprentice in Aivazovsky’s studio.⁵ During this same decade, Kuindzhi reportedly acquired the skills of a photographic retoucher as a means of supporting himself. While these early influences, no doubt, helped to formulate Kuindzhi’s mature style as is evidenced by his love of nature (especially the steppes of the Ukraine), his interest in experimenting with the mixing of paints, and his obsession with reworking his paintings as he might retouch a photograph. However, upon a closer examination of his signature paintings, a more pervasive and consistent influence on his creations is revealed through considerations of science.

The scientist Mendeleev, with whom Kuindzhi was closely associated, was born one of fourteen children in the village of Aremziansk in the area of Tobolsk, Siberia. He enjoyed an intellectually stimulating environment because his father’s position as head of the local university made his home a center of intellectual activity. While descendants of escaped serfs, Mendeleev’s family was more prosperous than Kuindzhi’s family, but it still struggled financially after the death of Mendeleev’s father in 1847. His family was supported by his mother’s work at his uncle’s glass factory. Mendeleev spent his youth


⁴Ibid.

⁵Vitaly S. Manin, Kuindzhi (Leningrad: Khudozhnik RSFSR, 1990), 152.
developing an appreciation for the complexity and origination of color by learning from his uncle about the mixing of chemicals to achieve the desired panels of stained glass. There is little doubt that Mendeleev’s exposure to the practical applications of chemistry throughout his childhood at the glass factory crystallized in his mind a love of chemistry at an impressionable age.

Both men struggled throughout their adult lives to assimilate themselves into St. Petersburg culture. Respected for their individual genius, beloved by the public for their support of student dissidents and approachability, Kuindzhi and Mendeleev were often remembered for their eccentricity. Much of the tenuousness surrounding Kuindzhi’s position amongst his peers was magnified by the confusion about his academic instruction and the rather mysterious circumstances under which he withdrew from the artistic mainstream after 1879. Accounts of Kuindzhi’s enrollment in the Academy of Fine Arts vary amongst scholars. Manin supported the position that Kuindzhi “evidently was allowed to attend classes at the St. Petersburg Academy of the Arts. In 1868, after passing exams in general education and special subjects. . . . Kuindzhi was given a diploma of free-lance artists for his independent works.”6 Alternatively, Bowlt stated that “In 1868, after several unsuccessful attempts, Kuindzhi entered the Academy of Fine Arts in St. Petersburg and, after concentrating in landscape, graduated in 1872.”7 And, fellow artist, Repin, commented that Kuindzhi never enrolled in a drawing class, during the six

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6Ibid.  
years that he was at the university, which he believed attributed to the crudity and simplification of his subjects. When it came to study, Kuindzhi followed his passion and intuition rather than the academic curriculum, a method which Repin believed allowed his innate genius to rule his work rather than academic convention. As Repin noted, there were two types of geniuses, the first type who learned his craft to perfection and the second type who exhibited an innate brilliance without training. He proposed that the second type of genius was of “the highest order” and that Kuindzhi was this type of genius.

Continuing his pursuit of an unconventional lifestyle, Kuindzhi spent the majority of his career as somewhat of a recluse. After 1880, when he exhibited Birch Grove (1879) [fig. 5], and Moonlit Night on the Dnipro (1880) [fig. 3], in the first one-man show of landscape painting in Russia which solidified his public fame, he exhibited only twice, in 1882 and in 1901. Kuindzhi was haunted by a rumor supposedly instigated by his fierce rival, M.K. Kloidt von Jurgensburg, that accused him of killing an artist and passing off the dead man’s work as his own. Neither Bowlt nor Manin was convinced that this story had any validity nor did they believe that it fully explained the reason for Kuindzhi’s withdrawal from exhibition activity, but it could have definitely been a factor in his resignation from the Peredvizhniki, of which Kloidt was a pivotal member.

Later in life Kuindzhi rejoined public life and taught at the Academy from 1892-1897 until he was expelled for aligning with student agitators. Following his expulsion from the Academy, he took students on trips to Europe with all expenses paid. In 1908,

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8Ilya Efimovich Repin, Dalekoe blizkoe [Far near] (Moscow: Khudozhnik RSFSR, 1982), 342.

9Ibid., 341.
he formed the Kuindzhi Society in St. Petersburg to provide moral and material support to individual artists. This official patronage lasted until 1931. Through all of this, Kuindzhi rarely let anyone, except for a few students to see his paintings. Moreover, his painting style became increasingly abstract and incrementally removed from its representational origins. In 1901 the artist exhibited a few of these later works to a select group and Mendeleev was a prominent member of the invitees.¹⁰

Kuindzhi’s public persona was nowhere near Mendeleev’s, who was an established public figure as a result of his international acclaim in the scientific community. Many of Mendeleev’s indiscretions were overlooked because of the prestige his standing in the international community brought to Russia. William Winikov, in the 1937 article, “Some of Mendeleev’s Personal Characteristics,” in the Journal of Chemical Education, described Mendeleev’s personality as unconventional and tempestuous. His “carelessness about conventionalities and then the sudden realizations of his ignorance in these matters, coupled with a terrific temper or temperament” gave him a reputation as a socially inept, if brilliant, mad scientist.¹¹ In 1890, Mendeleev resigned from his teaching post at the university after supporting students who rallied against police suppression of any semblance of free thought. He could no longer “breathe in this atmosphere,” he told his colleagues.¹²

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¹⁰Manin, Kuindzhi, 1990, 58. The works exhibited were a reworked Evening in Ukraine, a new Birch Grove and Christ in the Gethsemane Garden, all 1901.


¹²Posin, Mendeleev, 286.
Most likely, Kuindzhi’s first contact with Mendeleev occurred around 1868, upon Kuindzhi’s first involvement with the Academy of Fine Arts at the University of St. Petersburg. The late 1860s were important and productive years for Mendeleev. In 1868, Mendeleev published the first edition of his *Principles of Chemistry*, which was quickly translated into German and English. The author of Mendeleev’s obituary notice in the British journal of science, *Nature*, described the scientist’s work as being so impressive that “it is not easy to speak of this work in terms which savor hyperbole.”\(^{13}\) In March of 1869, Mendeleev presented his discovery of the law of periodicity along with his framework for the periodic table. During this time, Mendeleev’s lectures were extremely popular with the general public and especially law and philosophy students. Undoubtedly, he also appealed to art students as Kuindzhi clearly attests.\(^{14}\) According to Posin, Mendeleev lectured to his students with an artistic flair, marveling at the chemical properties of light, air and atmosphere, the essential subjects of Kuindzhi’s landscapes. Mendeleev’s excitement over the light and color demonstrations spread contagiously over the auditorium as he lectured. He “loved the color demonstrations as much as his students, and like them he seemed exhilarated by the colored flames, the bubbling liquids, the explosive reactions.”\(^{15}\)

Mendeleev’s interest in color evolved out of his study of the property of the elements. As noted earlier, he learned of the different chemical combinations that produced colored glass early on in his uncle’s glass factory. As a boy of fourteen years

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\(^{14}\) Posin, Mendeleev, 147.

of age, Mendeleev observed the purple flame of potassium and the bright ruby-red, yellow and green columns of burning copper as his uncle’s chemical trays went up in flames in the great factory fire of 1848.\textsuperscript{16} Later, in the laboratory, he would achieve the same effect by using a spectroscope, a prism-like instrument that separates out the distinct colors present in a ray of light or a flame invented in 1814 by John Fraunhofer, and later perfected by Gustav Kirchhoff.\textsuperscript{17} When in Germany in 1861, Mendeleev was first introduced to the spectroscope by Kirchhoff who described to his class how by very simply turning the instrument of the spectroscope toward “some glowing material” a set of color lines that would be unique to an element would be revealed.\textsuperscript{18} The color of elements was therefore essential in the identification of known elements and the discovery of those yet unknown. This type of analysis of the properties of light with the spectroscope was essential to Mendeleev’s ability to discover, identify, and to ultimately organize the earth’s elements into his periodic table. As previously mentioned, color revealed as a property of light, found a new prominence in science after 1860 and the spectroscope played an important role in this development. Light and color became a topic of considerable attention and exploration for both chemistry and physics for at least the next half of a century.

This was the environment in which Kuindzhi began his landscape painting career in earnest. Kuindzhi complemented his assumed classroom study of science with the

\textsuperscript{16}\textit{Ibid.}, 16-18.

\textsuperscript{17}Gustav Robert Kirchhoff (1824-1887) was a German expert in radiation, the spectroscope and electricity. In 1854, he and Robert Bunsen were responsible for establishing the tenets of spectrum analysis as it is known today. \textit{Ibid.}, 138-139.

\textsuperscript{18}\textit{Ibid.}
hands-on use of the spectroscope. According to Repin, it was not unusual for Kuindzhi and his *Peredvizhniki* colleagues to spend time in the laboratories of Mendeleev and physicist, Fedor F. Petrushevsky.\(^{19}\) In 1883, Petrushevsky wrote a book entitled, *Svet i tsvet sami po sebe i po otnoshenyu k zhivopisi.* [Light and color as such and with regard to painting]. Coincidentally, at the time when Petrushevsky was occupied with the study of the polarization of complementary colors, there appeared to be a rise of interest on the part of the artists, especially Kuindzhi, in this very subject. This became readily apparent in the contrasting tones of his *Birch Grove* (1879) [fig. 5].\(^{20}\) Moreover, Kuindzhi expressed such an intense interest in the instrument of the spectroscope that his colleagues ridiculed him for his obsession. According to Repin, Kuindzhi broke records in perceptibility with the aid of the device, exhibiting an uncanny ability to perceive colors beyond the ability of his colleagues. Yet, his colleagues failed to value his recognized proficiency with the spectroscope and heightened sensitivity to color as desired skills for a painter.\(^{21}\) Significantly, however, Kuindzhi’s ability with the instrument undoubtedly contributed to his keenly appreciative painter’s eye. Manin confirms that “Legends were told about his striking ability to grasp the subtlest nuances of color.”\(^{22}\) Essentially, Kuindzhi was an often-ostracized individualist, pursuing an intense and unorthodox fascination with science, a fascination that would become the source of his creativity.

\(^{19}\)Fedor F. Petrushevsky was president of the Physics Society and worked closely with Academy artists in St. Petersburg instructing them in the use of the spectroscope.


\(^{21}\)Repin, *Dalekoе blizkoе*, 343.

Mendeleev also lectured to his students about the effects of sunlight on chemical reactions. He stated in an 1868-69 lecture:

Chlorine explodes with hydrogen if a mixture of equal volumes is exposed to the direct action of the sun’s rays. This effect of light is fascinating to me. Sunlight showing its immediate effect on the chemical process. Ahh, I like that. How direct and clean. Very nice. Don’t you think so?\textsuperscript{23}

He was clearly enamoured with the power of the sun and its effects, a reoccurring theme visible in many of Kuindzhi’s works including Red Sunset on the Dnipro (1905-1908) [fig. 1], The Effect of Sunset (1885-1890) [fig. 6], Sunset in Winter. Seashore (1876-1890) [fig. 7], and Spots of Sunlight on the Hoar Frost (1876-1890) [fig. 8].

Building upon the lectures about the effects of sunlight on chemical reactions, Mendeleev discussed the varied composition of the atmosphere and how much of it is composed of invisible elements. Though invisible to the naked eye, the earth’s atmosphere is known to contain oxygen, nitrogen, carbon dioxide and cosmic dust. Mendeleev believed that it was essential for his students to recognize and be humbled by the fact that the atmosphere is not an empty entity, but that its gases form the origins of life. He stated:

A portion of the atmosphere is, of course, cosmic in origin – that is, it comes to us from outer space. This cosmic dust contains metallic iron as do the meteorites. The atmosphere is, of course, full of minute living things, the germs, the spores for example.\textsuperscript{24}

Curiously, Manin similarly described Kuindzhi’s interest in the air, the atmosphere, and the effects of light on them when he stated: “Kuindzhi was eager to explore the air medium as subject of painting, to investigate its ‘response’ to the effects

\textsuperscript{23}Posin, Mendeleev, 148.

\textsuperscript{24}Ibid., 149.
of light, its color structure, with its slightest transitions, and naturally, its emotional impact on human perception."\textsuperscript{25} Kuindzhi’s cloud imagery in his painting, \textit{Red Sunset on the Dnipro} (1905-1908), \textit{A Cloud. Sunset.} (1898-1908) [fig. 9] and \textit{Midday. Herd in the Steppe} (1890-1895) [fig. 10] hints at this concentration on the atmosphere from a scientific rather than emotional impetus. The clouds are given a density and presence that clues the viewer to their importance as subject matter in the paintings. His treatment of the clouds informs the viewer that the artist was aware of their complex and organic composition and that they were consequently deserving of artistic attention and painterly emphasis.

Next, Mendeleev was fascinated with the science of motion. He promoted the organic elements of the atmosphere including light, heat and electricity as aspects of motion. The movement and subsequent collision of their particles created new forms of life. When in 1889, he traveled to London to deliver the speech entitled “An Attempt to Apply to Chemistry One of the Principles of Newton’s Natural Philosophy” to the prestigious Royal Society, he concentrated on Newton’s Third Law – to every action there is an equal and opposite reaction.\textsuperscript{26} The speech highlighted motion as the common ground shared by chemistry and physics. As noted earlier, excerpts of Mendeleev’s speech clearly demonstrate a source of information for Kuindzhi. For example, Mendeleev said in his speech:

\begin{quote}
Nature, inert to the eyes of the ancients, has been revealed to us as full of life and activity. The conviction that motion pervaded all things, which was first arrived at with respect to the stellar universe, has now extended to the unseen world of atoms. No sooner had the human understanding denied to the earth a fixed
\end{quote}

\textsuperscript{25}Manin, \textit{Kuindzhi}, 1990, 153.

\textsuperscript{26}Posin, \textit{Mendeleev}, 276. For additional excerpts see “Introduction,” page 4-5.
position and propelled it along its path in space, than it was sought to fix
unmoveably the sun and the stars. But astronomy has shown that the sun moves
with unswerving regularity through the star-set universe at the rate of about fifty
kilometers per second. Among the so-called fixed stars are now discerned
manifold changes and various kinds of movement.\(^{27}\)

Mendeleev emphasized that motion had the power to change the accepted norms of
science, that science was not about the eternity of matter but about its mutability. He
continued in this vein:

Some chemists forget that there is the possibility of motion in the interior of
molecules, and therefore represent them as being in a state of deathlike
inactivity. . . . The discovery of the laws which govern this harmony in chemical
evolution will only be possible, it seems to me, under the banner of Newtonian
dynamics.\(^{28}\)

Mendeleev's thoughts on the importance of matter in motion predicted the
discovery of the electron in 1897. The electron is the atomic component responsible for
challenging all previously-held notions about the permanency and stability of matter.
The invisible electron has the power to split the atom, long thought to be the indivisible
foundation upon which the earth was built. As science became a focus for modern
artists, their reactions to the discovery of the electron contributed to new forms of
expression of the world around them. To illustrate, modern artists like Vassily
Vasilievich Kandinsky (1866-1944) and Marcel Duchamp (1887-1968) are especially
noteworthy for their responses to the discovery of the electron.

For Kandinsky the discovery of the electron was shattering, it disillusioned him
with the marvels of science. Kandinsky's angst over this discovery was evident when he
lamented:

\(^{27}\)Ibid.

\(^{28}\)Ibid.
This discovery struck me with terrific impact, comparable to that of the end of the world. In the twinkling of an eye, the mighty arches of science lay shattered before me. All things become flimsy with no strength or certainty. I would hardly have been surprised if the stones had risen in the air and disappeared. To me, science had been destroyed.  

By 1919, as illustrated by Kandinsky’s *The White Oval* [fig. 11], his paintings after the discovery of the electron no longer have any recognizable reference to nature. The nebulous, unfamiliar images depict the vestiges of a shattered world. Granted, the shattering effects of the Russian Revolution in 1917 and the destruction of another type of old order should not be ignored as influences upon Kandinsky, which makes the association with modern science even more poignant.

In contrast, Duchamp embraced the idea of motion for its own sake without subtle reference to the imploding effects of revolution. He was chiefly preoccupied with the physical science of the electron and he especially liked the idea of contrasting motion and static activity in his work. In this way, he distinguished himself from the Italian futurists who were engaged in depicting frenzied movement in response to rapid industrialization and technological innovation of the early twentieth century. In particular, as Linda Dalrymple Henderson points out in her recent study, *Duchamp in Context: Science and Technology in the Large Glass and Related Works*, Duchamp described *Nude Descending the Staircase* (No.2) (1913) [fig.12] as the “static representation of movement.”

Movement is implied as the figure transcends the staircase, but it is slowed as if each movement is to be respected for its integrity. Kuindzhi’s compositions,

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breathtakingly still as they seem, actually move in a measured fashion, certainly not as vehemently as Duchamp’s, but in a decidedly activated manner. Kuindzhi’s motion closely matches Duchamp’s description of his own work as a kind of deliberate, yet erratic movement that stops and starts in a pulsating fashion. Manin touches upon this quality in Kuindzhi’s painting, if he is once again ignorant of its origins:

Kuindzhi discovered the coloristic properties of air and studied not so much its vibrations as the intangible pulsations of air currents. It is strange that he did not follow the impressionist plastic solutions. His air medium seems to be motionless and is perceived as an independent living entity concealing, thereby its mysterious being.31

Kuindzhi’s colors and light shapes imply a shifting, zigzagging motion of contrasting colors and light shapes as in Birch Grove (1879) [fig. 5]. In The Effect of Sunset (1895-1900) [fig.6], the bright red and orange light and razor-like shadows certainly do not invite a sense of tranquility, but transmit a strong disrupting vibration. In his later works, like Red Sunset on the Dnipro (1905-1908) [fig. 1], where movement seems to be absent or halted, the reflective qualities and tightly knit design of works are still heightened by the silent flow of the cool water’s inner depths, or the gentle passing of the clouds to reveal the suns penetrating glow.

Kuindzhi was neither disenchanted with motion like Kandinsky nor excited by its possibilities like Duchamp, but he did respond to it in his own unusual, yet scientific fashion. Kuindzhi’s, response to motion was most probably related to what he knew from Mendeleev since the discovery of the electron came rather late in his career.


Mendeleev expressed the idea that motion pervaded all things and that the interior of molecules was always changing and not in a condition of lifeless inactivity as scientists previously thought. Essentially, motion pervaded every aspect of nature, causing it to evolve and decay. Perhaps Kuindzhi did mix his paints as Kramskoi described, without regard for their permanence, a method perhaps promoted by the conviction that nothing in nature is permanent. Therefore, if Kuindzhi was faithful to his mission to re-create nature as known to him through science, it would be logical that he would paint it with a substance that would catalyze transformation and evolution, and if organic, eventually expiration. Just like the gases that compose the atmosphere, his paints were a volatile mixture. In this manner, his works do not just picture nature; they are a participant of nature. Motion in Kuindzhi’s paintings cannot be measured in terms of velocity, nor is it rapid or frenzied as it is often associated with modernist painting, but it does insist on an evolutionary impermanence and a degradation of material over a period of time.

Outside the laboratory and lecture hall, Kuindzhi was acquainted with Mendeleev at art exhibitions and other public gatherings, as well as private meetings. Additionally, following Mendeleev’s 1882 (and second) marriage to a young artist, Anna Popova, the couple began holding Wednesday evening social and intellectual gatherings at their home. St. Petersburg’s most active and esteemed politicians and artists including Nikolai Aleksandrovich Yaroshenko, a radical politician and former army officer turned painter, and Repin were among the attendees. Although, by 1882, Kuindzhi was reportedly already a recluse, he also participated in these gatherings. Most likely, his

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32 Two such formal meetings mentioning Kuindzhi are noted in Mendeleev’s diary on June 2, 1886 and September 17, 1895, in A.V. Storonkin, Letopis zhizni i deiatelnosti D.I. Mendeleeva (Leningrad. Nauka, 1984), 251 and 346.
presence was a result of his close friendship with the Mendeleevs. Anna was so impressed with Kuindzhi that she “would always tremble as she awaited Kuindzhi’s opinion of her efforts.” Mendeleev’s salon guests were honored and humbled by the presence of the serious-minded giant who brought such esteemed recognition to Russia. In order to honor the great scientist and to recognize his contributions to the artistic community and the country of Russia, Ilya Repin painted a portrait of the scientist garbed in his Oxford robes.  

It is important to recognize that Mendeleev’s interest in the arts community was not simply an accommodation to his new wife or his dear friend, for as Mendeleev biographer A. V. Storonkin observed, “Coming into contact with art was not simply for relaxation, but an unusual stimulus for [Mendeleev’s] ideas about natural science.” Material evidence of Dmitri Mendeleev’s high regard for Kuindzhi’s painting and the manner in which art stimulated his intellect was eloquently if often simplistically expressed in the editorial, *Pred kartinoyu A.I. Kuindzhi* [Standing before Kuindzhi’s painting.] printed in the St. Petersburg newspaper, *Golos* [Voice], on November 13, 1880. He wrote the article in response to Kuindzhi’s painting, *Moonlit Night on the Dnipro* (1880) [fig. 3]. Mendeleev was so affected by the ability of Kuindzhi’s moonlit landscape to capture nature’s authentic beauty that he was inspired to propose a theory about the evolution of landscape painting and the natural sciences throughout history. Primarily, however, Mendeleev’s response to Kuindzhi’s painting was an emotional one:

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33 Posin, *Mendeleev*, 238.

34 Despite his prestige and fame, Mendeleev was denied full membership in the Russian Academy of Science, but Oxford University, England awarded him an honorary degree and he enjoyed membership in the Academy of Fine Arts, St. Petersburg in recognition of his contributions to the art world.

Standing in front of Moonlit Night on the Dnipro by A.I. Kuindzhi, it seems as if I am forgetting myself in a dream, the artist has unintentionally created his own artistic language, a poet casting a calming spell, a thinker giving birth to a new idea — to everyone who encounters the painting. 36

The painting caused Mendeleev to think abstractly, to wonder about man’s reaction to an observation of nature. As a scientist with a strong belief in fact-based knowledge, Mendeleev struggled with himself as he was drawn into the magic of a painting that depicted nature perhaps even more essentially than a direct experiential observation. He searched for the logic and the words to explain the relationship between the observations of nature by a natural scientist and an artist’s reading of nature as expressed by Kuindzhi in paint. And finally, he struggled to find a logical reason for his own highly emotional response to Kuindzhi’s painted nature:

First it seems to me that it is an issue of personal taste like one’s understanding or sense of the beauty of nature. Complete belief in the groundlessness of such interpretation, something I had long ago rejected, became known to me when I was out under the spell of Kuindzhi’s painting: the beautiful night, the moon sparkling on the river and the overhead blue patches are uniformly realized in the painting in such a way that reality herself might fail to recognize... 37

It is important to understand Mendeleev’s struggle with what he might refer to as “groundless interpretation.” Mendeleev certainly appreciated and valued the ability of a scientist to use inductive reasoning to reach theoretical conclusions. 38 Further

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36Dmitri Mendeleev, Pred kartinoyu A.I. Kuindzhi [Standing before Kuindzhi’s painting], in Golos, #314 (November 13, 1880).

37Ibid.

38Mendeleev was especially concerned that scientists not rely on deductive reasoning alone in order to reach their scientific conclusions. The Random House Dictionary, 1980 ed., 347, defines deductive reasoning as “a logical process in which a conclusion drawn from a set of premises contains no more than information than the premises taken collectively.” Inductive reasoning is defined as “a logical process in which a conclusion is proposed that contains more information than the observations or experience upon which it is based.” Mendeleev used inductive reasoning to create his periodic table. He
demonstrating Mendeleev's ability to think abstractly is the legend that the mapping of
the periodic table, "arguably the most important concept in chemistry and in practice,"
(according to P.W. Atkins, author of The Periodic Kingdom) came to him in a dream.\textsuperscript{39} Atkins, believed that Mendeleev often allowed "his chemical nose to guide him,"
implying that he often permitted intuition to factor into his scientific activities.\textsuperscript{40} He
described the legend of Mendeleev's discovery of the periodic table when he wrote,

> It is said that during a brief nap in the course of writing a textbook of chemistry,
for which he was struggling with the problem of the order in which to introduce
the elements, he had a dream. When he awoke, he set out his chart, in virtually its
final form. The date was March 1, 1869.\textsuperscript{41}

Further, Mendeleev believed that the structure of his table, arranged by atomic
weight, demanded that he leave gaps for yet undiscovered elements. For each of these
unknowns Mendeleev assigned properties, but he had not yet observed the elements
themselves. Atkins described the leap of faith that it took for Mendeleev to leave such
gaps, or blank spaces in the periodic table when he stated: "Since only 3/5 of the table
was known, Mendeleev had to have the courage to listen to an inner voice and to
conclude that some regions [elements] had not yet been discovered."\textsuperscript{42} In Principles of
Chemistry, Mendeleev unwittingly described what Atkins called his "courage to listen to
an inner voice" when he declared:

\begin{quote}
was extremely wary, however, of how some scientists disregarded logic entirely, supporting belief in non-
scientific phenomenon like spiritualism, mysticism and alchemy.
\end{quote}


\textsuperscript{40}Ibid.

\textsuperscript{41}Ibid., 86.

\textsuperscript{42}Ibid., 85.
The necessity to cast aside classical illusions [and] stagnant realism which is content with only bare facts. . . . To conceive, understand and grasp the whole symmetry of the scientific edifice including the unfinished portions, is equivalent to tasting the enjoyment only conceived by the highest forms of beauty and truth.\textsuperscript{43}

Mendeleev’s co-mingling of abstract thought and deductive scientific reasoning was not uniformly accepted. This was made evident in abundance at the debut of his law of periodicity. Since Mendeleev was ill, Nikolai Menshutkin, Mendeleev’s colleague and friend, presented Mendeleev’s discovery of the law of periodicity to the Russian Chemical Society in March 1869. Following the presentation, a young analytical chemist from Kazan University named Berlikov (first name unknown), reacted with alarm and concern. He said to Menshutkin, “Those blank spaces. They bother me. What is the meaning?” Menshutkin replied, “As I said . . . Mendeleev listed the substances in this order, but had to leave blank spaces so that the relationships which he has found would not be spoiled.” In confusion, Berlikov replied, “But can nature have blank spaces?” Menshutkin replied with a smile, “Apparently she has everything. . . . She might as well have blank spaces. My mind is one of them.”\textsuperscript{44}

Mendeleev’s courage to think in abstract terms, his willingness to accommodate voids or gaps in the abstract, was indeed significant. The struggle of science to disassociate itself with mysticism and superstition while simultaneously freeing itself from the exclusivity and rigidity of classical thought was a precarious task, especially as


\textsuperscript{44}Posin, \textit{Mendelev}, 175-176.
early as 1869.\textsuperscript{45} To illustrate: in 1864, just a few years before Mendeleev’s presentation of a periodic table with blank spaces, English chemist, John Newlands, located thirty-five elements and mapped them in a manner that was analogous to musical scales, noticing that the harmonies among the elements occurred at every eight steps, or octaves. Using the abstract properties specific to music to map properties of science was a concept that could only bring ridicule:

\begin{quote}
It was truly unfortunate for Newlands . . . that he chose music to express his observations, for he was laughed to scorn. How could the fundamentals of nature be related to musical harmonies? How absurd! Had Mozart picked out chemical combinations when he composed?\textsuperscript{46}
\end{quote}

Ironically, Newlands’ musical analogy was proven partially correct for when atomic volume is used to predict a pattern of elements in the periodic table, it is indeed true that they primarily peak at the eighth and sixteenth weights. Mendeleev’s blank spaces anticipated quantities still unknown in his time. Amazingly, they were eventually replaced by elements that perfectly matched Mendeleev’s pre-established criteria, and different scientists all independently discovered them. Eventually, Mendeleev was revered as scientific prophet for his bold and accurate predictions. He anticipated the discoveries of the planet Neptune and the elements germanium and gallium. Only a few short years before Mendeleev dreamed of the layout of the periodic table a collateral

\textsuperscript{45}Ibid., 200-201. In 1875, when a wave of spiritualism swept over Russia, Mendeleev was intrigued enough to observe nineteen seances on behalf of his colleagues who still believed in spiritualist phenomenon. After observing these seances under controlled laboratory conditions, Mendeleev wrote the book, Information for Critical Judgements of Spiritualism denouncing spiritualist phenomenon’s value as inferior to a scientific perspective. Mendeleev later lectured: “The most all-penetrating spirit, before which will open the possibility of tilting not tables, but planets, is the spirit of free human inquiry. Believe only in that.”

\textsuperscript{46}Atkins, The Periodic Kingdom, 82.
relationship between art and science was unheard of; less than twenty years later, his *Golos* editorial mapped out just such a relationship.

Storonkin declared that Mendeleev’s *Golos* editorial documented definite parallels in the evolution of natural science and the interests of landscape artists.\textsuperscript{47} Mendeleev simplistically, yet profoundly, outlined a history where in ancient times, landscape painting was not held in high esteem, though it was in existence. Next, Mendeleev noticed that in the sixteenth century, landscape, if included in a painting at all, was only a backdrop for man and his world. He observed that in the Renaissance, man was the subject of all painting and science. It was during this era that man was the center of the universe and all knowledge sprung from his experimentation and deductive reasoning. Eventually though, with the birth of the natural sciences in the Enlightenment, the non-rational effects of experiencing nature caused man to accept both experiential and experimental observation. Man began to value the nonobjective, his personal reactions to nature, the importance of abstract thought and his conscience to communicate the process of experiencing nature. Mendeleev stated, “Simultaneously, if not earlier, with this change in the system of knowledge, landscape art was born. And, sometime in our lifetime we will be able to describe the appearance of natural science in science and landscape art.”\textsuperscript{48} Kuindzhi’s prowess at making art that appears to be nature itself has been well documented here. Further, as Kuindzhi’s works decompose, perhaps natural science is being observed in landscape, in a second, but deliberate way on the part of the artist.

\textsuperscript{47}Storonkin, *Letopis i deyatelnosti D.I. Mendeleeva*, 238.

\textsuperscript{48}Mendeleev, *Pred kartinoyu A.I. Kuindzhi*.
Mendeleev hinted, albeit subtly, that perhaps artistic developments anticipated scientific discoveries when he made the statement, "Simultaneously, if not earlier, [author's emphasis] with this change in the system of knowledge, landscape art was born." In this way, Mendeleev suggested that paradigmatic shifts in societal beliefs could be predicted by changes in artistic expression. Over a century later, Leonard Shlain more definitively articulated such an idea. He privileged art over science with the premise that art served as a "Distant Early Warning System of the collective thinking of society." He expressed this belief when he declared,

Artists have mysteriously incorporated into their works features of a physical description of the world that science later discovers... The artist, with little or no awareness of what is going on in the field of physics, manages to conjure up images and metaphors that are strikingly appropriate when superimposed upon the conceptual framework of the physicist's later revisions of our ideas about physical reality. Repeatedly throughout history, the artist introduces symbols and icons that in retrospect prove to have been avant-garde for the thought patterns of a scientific age not yet born. Few art historians have discussed this enigmatic function of art in depth... All too often, when reading about the work of exceptional artists, we are told about past styles that influenced their work. Their pedigrees are traced backward to former artists and rarely is their work explained in terms of how they anticipated the future.  

It is doubtful that as a scientist Mendeleev would have accepted such a radical proposition as the "Distant Early Warning system." He might agree, however, that the power and mystery of Kuindzhi's painting, *Moonlit Night on the Dnipro* (1880), depicted nature in both such a complete and abstract way that it left him struggling for a logical explanation. It seemed to take nature to a level that not even science had been able to

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comprehend. Kuindzhi’s painting indeed demonstrated and continues to demonstrate the inability of traditional art history, rooted in the backward tracing to previous artists, as deficient for interpretation. For Kuindzhi, science explains how his works anticipated the future and it is science that brings them a measure of comprehension.

Regardless of which discipline, art or science, led paradigmatic shifts in society’s thinking, Mendeleev and Kuindzhi lived in a society on the cusp of change in the way that it related to art and science. Again, as noted earlier, after 1860, science shifted its emphasis to physics and became consumed with the study of the cosmos. Henderson noted that eventually the complexities of physics would ultimately alienate the common man, much as it disillusioned Kandinsky. In general, science at the turn of the century was in the process of moving from superstition and popular culture to sophisticated experimentation and elitist intellectualism. In the late nineteenth century, science was a topic of popular consumption. The general public was fascinated by the rapid pace of discovery and was well furnished with popular literature to feed their curiosities – everything “from Harper’s Monthly to La Nature.” But, after the discovery of the x-ray in 1895, and the electron in 1897, science began its ascent out of the reach of the common man, an ascent that would not be complete until after World War I, when Einstein’s Theory of Relativity (invented in 1905) would dominate scientific thought. As Henderson explained: “x-rays and radioactivity made it impossible for the layperson to think of matter as solid and impenetrable or of space as void. Instead, space must be

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[51] Ibid., xxi.
filled with invisible electromagnetic rays and particulate emissions. . .”52 These abstract ideas not only removed science from the mainstream, but when artists anticipated or reacted to them, their creations also became more elitist and inaccessible as well. Science deconstructed matter and painters deconstructed their compositions, often leaving the common man bewildered.

Kuindzhi was clearly interested in science’s most progressive ideas long before they became tenets of modernism in art. At the risk of overstating Kuindzhi’s importance, the artist gave substance to the invisible before the x-ray and his experiments in paint dealt with the dissolution of matter before the discovery of the electron. He also illustrated aspects of Duchamp’s static representation of motion before Duchamp. While certainly Kuindzhi was not alone in his early incorporation of science into painting, he was indeed such an atypical pioneer in modern painting – emerging from the culture of nineteenth-century Russian landscape painting – that scholars researching the origins of modern Russian art have traditionally overlooked his work. While Kuindzhi may have been ignorant of the prophetic properties of his painting, his fascination with science definitively helped to steer his art in a direction that predicted properties more commonly associated with the later movements of cubism, rayism, and suprematism. Perhaps a case could be made for Kuindzhi’s art having signaled a paradigmatic shift in art and/or science, especially by utilizing Shlain’s argument for a “Distant Early Warning system.”

But, more likely and definitively more broadly defensible is the premise that, in general, art and science in the late nineteenth century paralleled each other as they became more complicated, remote and abstract.

52Ibid., 8.
In traditional art history, a common starting point for relating modern painting and science is impressionism. While it may be tempting to credit impressionism with beginning this trend toward scientific inspired painting due to its intense and revolutionary interest in light, impressionism’s interest in science failed to reach the level of intensity or seriousness that later art movements would adopt. According to the scientist, C.H. Waddington, author of *Behind Appearance: A Study of the Relations Between Painting and the Natural Sciences in this Century* (1970):

> The influence of science on impressionists, although powerful, was at a relatively superficial level of manner and subject. It offered hardly any comment on the character of scientific thought or on the nature of the concepts which science derives from its observations.\(^{53}\)

As a result, by 1886, the neo-impressionists, who believed that they were far superior to the impressionists in their understanding and application of science, sought to distinguish themselves from the impressionists. Artists such as Camille Pissarro, Georges Seurat, and especially, Paul Signac desired to be more scientific in their approach to painting. John G. Hutton, author of *Neo-Impressionism and the Search for Solid Ground: Art, Science and Anarchism in Fin-de-Siècle France* (1994), summarized: “For Signac neo-impressionism had regularized, codified, rendered precise and scientific for the impressionists had been mere instinct and intuition.”\(^{54}\) Interestingly, the neo-impressionist pursuit to be more scientifically precise paralleled Mendeleev’s late nineteenth century campaign to distance modern science from mysticism and superstition.

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Despite valiant efforts on the part of the neo-impressionists, Waddington declared that “it was cubism that was first in the field,” represented by Pablo Picasso’s *Les Demoiselles d’Avignon* in 1907 [fig. 13] that seriously understood and incorporated science into its discipline. Subsequently, in 1912, Albert Gleizes and Jean Metzinger wrote the groundbreaking essay *Du Cubisme*. Henderson summarized this essay in her Duchamp anthology when she stated that Gleizes and Metzinger “presented cubism as a new mode of vision on a new kind of revelatory light that penetrates instead of being reflected from forms as the light of realism and impressionism had been.” Picasso’s fragmented figures depicted parts and angles of the human body that this new light could penetrate but that the naked eye could not observe. He manipulated imagery based on his knowledge of the x-ray to reveal those aspects of the body that were present, but undetectable. Similarly, Kuindzhi’s light penetrated and revealed the unexposed elements of nature, giving color and form to light and to atmosphere animating what had previously been treated as lifeless backdrop in landscape painting. Significantly, Kuindzhi painted such effects in landscape rather than portraiture, as early *Birch Grove* (1879), by engaging his knowledge of physical chemistry.

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55 Waddington, *Behind Appearance*, 10. Waddington’s inclination to cite cubism as the starting point for science-inspired art is natural and logical for cubism marked a dramatic turning point in the transformation of the visual arts. As Herschel B. Chipp, author of *Theories of Modern Art: A Source Book by Artists and Critics*, with contributions by Peter Selz and Joshua Taylor (Berkeley: University of California Press, 1968), 10, stated: “The cubist movement was a revolution in the visual arts so sweeping that the means by which images could be formalized in a painting changed more during the years from 1907-1914 than they had since the Renaissance.” Yet, this factor should not blind the scholar to earlier and possibly more formative connections between art and science, like Kuindzhi’s paintings, that had their roots outside of the main art centers of Europe, like Russia, and in more traditional genres, like landscape.

Waddington’s declaration left neo-impressionism caught in-between the past and the future. As Hutton pointed out, “caught in between impressionism and cubism, neo-impressionism, not surprisingly, sought a synthesis of ideas between the real and the ideal, the fugitive and the permanent, the scientific and the instinctive.”

It would seem as if this neo-impressionist search for synthesis was similar to Kuindzhi’s nearly simultaneous search for a synthesis between art and science as illustrated in Red Sunset on the Dnipro (1905-1908) [fig. 1]. According to early Kuindzhi historian, M.P. Nevedomsky, however, such parallels are invalid, for Kuindzhi did not view himself as aligned with any of the European movements. Nevedomsky commented that Kuindzhi was disappointed with modern movements from impressionism to cubism because of their failure to provide “the desired synthesis of reality.”

According to Nevedomsky, Kuindzhi searched for a complete analysis, not a fractionalized “dissection of the world into angles, facets. . . .” Neither did Kuindzhi favor Cézanne’s “decomposition of the colors,” or “Van Gogh’s coloristic experiments, his pictures – splashes or picture carpets as they were called.” Kuindzhi sought a harmonic balance between the process of painting, the science of nature and the finished canvas. His art was not about the distressing elements or the fractionalized nature of modern life that consumed many Western European painters, but about the glory of nature as science and art joined to reveal a more true account of its properties. In order to achieve his goal, Kuindzhi

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57 Hutton, Neo-Impressionism and the Search for Solid Ground, 20.

58 Translated excerpts of M.P. Nevedomsky, Kuindzhi (Moscow: State Publishing House of Fine Arts, 1937), 60, by Mary Kolokolaikoff from The Metropolitan Museum of Art curatorial files.

59 Ibid.
depicted light and color that defied the convention and the artifices of painting, but had a grounding in science.

Kuindzhi and Mendeleev led parallel lives from roughly 1868-1907, and as Mendeleev, Shlain and Dalrymple and Waddington suggested, for the most part, so did painting and science. Furthermore, as Kuindzhi’s interest in the natural sciences highlighted, it was landscape painting that was ideally positioned to adapt itself to the advances in physical and chemical science that altered man’s understanding of nature in the later nineteenth century. As the next chapter will further illustrate through an interpretive analysis of Kuindzhi’s paintings, Kuindzhi’s curious and awe-inspiring landscapes indeed may have been the very first to represent modern science in paint.
CHAPTER 3

Science in Paint: An Interpretive Analysis of Kuindzhi’s Signature Works

Kuindzhi’s interest in science can be observed in his work as early as Lake Ladoga (1870-1873) [fig. 14], one of Kuindzhi’s first works completed after he entered the Academy.¹ Lake Ladoga (1870-1873) is a vertical landscape, a format somewhat unusual for Kuindzhi who usually preferred the horizontal format. Also atypical for Kuindzhi (at least in his mature works) is the inclusion of figures in his landscapes. A distant fishing vessel with several fishermen is present in the scene of Lake Ladoga (1870-1873). The painting was finely executed with few visible brushstrokes. The sky of billowing clouds dominates the canvas, if not the composition, hinting at the importance that Kuindzhi would give to the atmosphere in later works like Red Sunset on the Dnipro (1905-1908) [fig. 1]. The somber, academic gray tones threaten to dominate the painting, but the foreground rocks are bathed in a lightness that startlingly creates a more excited, if disjointed composition. The light is so powerful that it penetrates the water, allowing the viewer to examine the contents of the bottom of the lake along the shore. The brilliantly lit and detailed rocks and sticks of the foreground overwhelm the

¹Vitaly S. Manin, Kuindzhi (Leningrad: Khudozhnik RSFSR, 1990), dated Lake Ladoga to 1870 and John E. Bowlt, “The Russian Luminist School: The Work of Arkhip Kuindzhi,” in Russian Art 1875-1975: A Collection of Essays, (New York: MSS Information Corporation, 1976), dated it to 1873. Either year is possible, therefore the range is used here. This should not be interpreted as a span of time that Kuindzhi worked on the piece as such a span notation does indicate with his other works.
composition creating tension between the dark midsection and the light foreground.\(^2\)

This tension is partially mollified by the large, soft billowing cloud that pulls the eye upward. Ascribing this quality to romantic notions about painting landscape, Manin ties *Lake Ladoga* (1870-1873) to *View of Valaam Island* of the same period to state:

In spite of a predominantly realistic observation of the modest Russian countryside in the pictures *Lake Ladoga* and *View of Valaam Island*, they still bear vestiges of heightened romanticism in their tense psychological atmosphere created by tumultuous light and shade effects.\(^3\)

The tension between the dark and light shade effects in *Lake Ladoga* (1870-1873), it can be argued, is not psychological or romantic in origin, but primarily physical. Kuindzhi was not necessarily symbolizing a mood, which would be reasonable and expected for the period, but he increased the effects of nature to a heightened state for an alternative emphasis, i.e., to come as close as possible to re-creating nature on the canvas itself. As mentioned earlier, as Kuindzhi strove toward his mature style, he often created uneven compositions that contained effects that seemed out of balance with the rest of the painting like the sunlit rocks of *Lake Ladoga*'s foreground. Observing Kuindzhi’s struggle for effect and balance, Sarabianov described Kuindzhi’s treatment of nature in paint thus:

Choosing unusual effects of sun or moonlight he captured special and particularly beautiful moments in the natural cycle. He increased these effects by all possible means, almost to the point of distorting aesthetic norms; one more brushstroke, we feel, and the whole thing would degenerate into chocolate-box prettiness.\(^4\)

\(^2\)This depiction of detail could be a product of Kuindzhi’s photographic retouching skills, a trade he plied immediately preceding this painting.

\(^3\)Manin, *Kuindzhi*, 1990, 152.

While still under the auspices of the Academy, *Lake Ladoga* (1870-1873) is, for the most part, a rather mundane academic work. With its subtle color, the presence of figures, a foreground, middle and background in perspective, and a general absence of brushstroke; its vibrant qualities emerge only as a result of Kuindzhi’s inability to suppress his passion for experimentation and innovation. Kuindzhi was clearly more interested in the light and shade effects than the compositional balance of the painting. He clearly delighted in revealing the effect of light penetrating water. Importantly, this was not a borrowed technique that he might have learned from time spent with the sea painter, Aivazovsky. Rather, it was an early assertion of Kuindzhi’s individualism. Because of the risks he took with *Lake Ladoga* (1870-1873), this painting became a signal of Kuindzhi’s future interests and a ground-breaking piece in the history of Russian art:

> Besides conveying a generally agitated state of nature, the artist is also concentrating on recreating the effect of light passing through clear water, revealing the rocky bottom of the lake’s shore. Kuindzhi, in this very picture was the first to use this motif in Russian painting.  

Another material aspect of *Lake Ladoga* (1870-1873), one hardly mentioned by Kuindzhi scholars, is the significance of the dominant billowing cloud that covers nearly two-thirds of the canvas. This cloud formation became a trademark of Kuindzhi’s later works. *Red Sunset on the Dniepro* (1905-1908) [fig.1] is but one of Kuindzhi’s mature landscapes in which the composition is dominated by an enormously large cloud. The most intriguing characteristic of these later clouds is the manner in which they mimic

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organic structures below. In both *Red Sunset on the Dnipro* (1905-1908), and *A Cloud. Sunset* (1898-1908) [fig. 9], the cloud and the trees below share a similarity of form. The trees were simplified to match the cloud imagery, placing the traditionally nebulous clouds on parity with solid living entities. This artistic device is reminiscent of Mendeleev’s lecture describing the atmosphere as full of minute living things. Through paint and design, the cloud is just as alive as the trees. Showing the playful side of his experimentation, Kuindzhi also created the opposite image by painting a tree reaching up to the sky that could be mistaken for a cloud in *Tree Against the Evening Sky: The Ukraine* (1890-1895) [fig. 15]. Kuindzhi obviously enjoyed blurring the line between the organic and the inorganic, using his knowledge of science to create a metaphoric and hyperbolic image of nature. Another illustration of this hypothesis is *Evening in the Steppe* (1876-1890) [fig. 16]. In this painting, two peculiarly shaped vertical clouds hover above the steppe like landlords surveying their property or shepherds tending to their flock.

Manin explained Kuindzhi’s watchful cloud formations thus: “The formula is a kind of massive cloudy form of a whimsical shape. In this way the artist put concrete earthly forms on par with conventional heavenly shapes.”6 Again, despite an accurate description, Manin’s implied reasoning stems from the conviction that Kuindzhi’s predecessor was the German romantic landscapist, Caspar David Friedrich (1774-1840).

The solemn phosphorescent colors of the *Moonlit Night on the Dnipro* evoke lofty feelings, arouse meditations about earthly life and the celestial world, solemnly restful in its slow movement. The ‘romantic languor’ present in the picture suggests a comparison with Kuindzhi’s German predecessor, Caspar David Friedrich.7

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Much of Manin’s belief about Kuindzhi’s romanticism rested upon the assumption that Kuindzhi was enthralled with the interplay of the celestial and earthly worlds inspired by romanticism. Joseph Leo Koerner in *Caspar David Friedrich and the Subject of Landscape* (1990) wrote from the standpoint that the phenomenon of nature replaced the worship of God as the subject matter of the romantic landscape painting. Friedrich’s *Tetschen Altar or Cross on the Mountains* (1807-1808) [fig. 17] served as a paradigm of Koerner’s description. In this work, the cross with Christ nailed upon it is dwarfed by the mountainous rock formation and surrounding evergreens. Nature’s power overwhelms Christ and eventually, in many of Friedrich’s later works, there is no overt heavenly presence. His nature scenes, *Trees and Bushes in the Snow* (1828) [fig. 18] and *Fir Trees in the Snow* (1828) [fig. 19] are void of human intervention similar to Kuindzhi’s *Moonlit Night in the Winter Forest* (1898-1908) [fig 20] and *Spots of Sunlight on the Hoar Frost* (1876-1890) [fig. 8]. Yet, in these nature works of Kuindzhi’s, any tension present in earlier paintings is absent. Earth and cosmos, organic and inorganic, are in harmony achieved primarily by the artist’s simplistic design of nature’s light, trees and atmosphere all of which focus on general forms and shapes instead of on intricate detail. It is the even-handed treatment of the spots of moonlight and sunlight, shadow and trees, foreground and sky, that harmonizes and completes these late works. In contrast, Friedrich’s landscapes have an unsettling quality about them that results from the absence of God, or the actual figure of Christ in the painting. Unlike the satisfying nature of Kuindzhi’s paintings, Friedrich’s compositions with their detailed trees and contrastingly barren skies evoke an inexplicable emptiness because of

who or what has just exited the parameters of the composition. As Koerner explained, "To navigate this purgatory, where the artist fashions his works again as altars, but must leave out the gods, is part of the historical project called romanticism." In this romantic spirit, Friedrich’s paintings are eternally empty, barren and incomplete. His trees and other subjects become merely lifeless detailed illustrations, while Kuindzhi’s works give an intangible spirituality to all the elements of his paintings. Kuindzhi’s works are not about what is missing or the vestiges of man or Christ, but the fullness, complexity and fragility of an ever-present, physically palpable nature.

From a different perspective, Timothy Mitchell, author of Art and Science in German Landscape Painting 1770-1840 (1993), believed that Friedrich’s work was profoundly inspired by the scientific discoveries of geography. Yet, he was unable to furnish direct evidence of this: “It would have been nice to discover in some as yet unpublished memoir, a description of Friedrich resting in the evening while reading a copy of Humboldt’s Ansichten de Natur, but it is not necessary.” This lack of connection between artist and scientist and the rather unscientific, romantic experiment of worshipping of nature in place of God regrettably works against Mitchell’s hypothesis. Significantly, in the landscape painting of Kuindzhi, the bond between artist and scientist definitely existed, shaping both the process and result of Kuindzhi’s artistic experiments and freeing his works from the tension of romantic overtones.

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8Ibid., 20.

In Kuindzhi’s *Birch Grove* (1879) [fig. 5] the artist took his interest in light and his knowledge of science to a new level. He clearly decided to pursue his individual creative impulses instead of following academic convention and acquired fame. *Birch Grove* (1879) was exhibited with *Moonlit on the Dnipro* (1880) [Fig. 3] in an apartment overwhelmed by public clamor to see these landscapes that were rumored to glow before the viewer’s eyes. ¹⁰ The birch grove, a familiar sight in Russia’s countryside, was actually de-familiarized by Kuindzhi’s assertion of his individualistic style. The appearance of light in formed shapes; an alternating pattern of light and dark tones progressing horizontally and vertically across the canvas; the chartreuse coloration and the introduction of a complementary reddish hue on the tree bark and surrounding grasses; crudely outlined, but distinct tree formations; and the unusual cropping which dismembered foliage from trunk caused the viewer to question his own observance of a birch grove. Yet, the painting is pleasantly emotionally stirring, “convey[ing] the joyful mood of rain-washed earth, the dazzling sunlight playing on the tree-trunk and on the thick grass of a forest glade.”¹¹ The viewer is primarily, however, unnerved by the eerie sensation that while he is aware of the occurrence of this marvel of nature, he has missed something until now. Ironically, prior to viewing Kuindzhi’s painting, a mere representation of nature, the viewer never quite comprehended the entirety of nature’s magnificence. The painting has the power to both awe and disturb and it plays on this double effect of empirical observation and emotional response. Bowlt observed the

¹⁰ Repin, *Dalekoe blizkoe* [Far near] (Moscow: Khudozhnik RSFSR, 1982), 345-346.

complexity of this work, an intricacy achieved by Kuindzhi’s stylistic innovations: “This highly emotive picture, which caused some people to ‘stand open-mouthed before it and others to weep’ combines a touching simplicity of main theme with a complex zigzag distribution of images and refractions.”

*Birch Grove* (1879) was indeed both a complex and pivotal work for Kuindzhi. Explanations for its exhilarating strangeness abound, yet, the weight of the evidence favors a more convincing explanation rooted in Kuindzhi’s interest in science. Again, one of the most fascinating aspects of the Kuindzhi’s painting is his manipulation of light, especially as it has evolved from its the unbalanced use to highlight the rocks in *Lake Ladoga* (1870-1873) [Fig. 14], to the prominent position of subject matter with its own shape and weight in *Birch Grove* (1879). The light filtering through the trees does not simply illuminate the trees and grasses, but it forms clearly delineated shapes, especially obvious on the trunks of the trees. These light shapes have parity with the other subjects in the work, namely the trees and foliage. Even the sky, a negative space resulting from the simple design of the tree formations, begins to take on a form. This technique is echoed in Kuindzhi’s later painting, *Grove* (1898-1908) [fig. 21] where the sky has a definite shape of its own, artistically engineered by the arching trees. The tangible form of the blue sky, like the clouds in many of Kuindzhi’s works, mimics the weight and silhouette of the tree forms that share the composition. These qualities give the sky an animated presence, bringing it forward on the canvas instead of allowing it to recede to the background. No doubt, the connection to Mendeleev could be evoked as Bowlt pointed out:

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Kuindzhi's treatment of light and space as concrete phenomenon rather than as perceptual abstractions was encouraged undoubtedly by his particular interest in the chemical bases of paints, by his experiments with them and by his close friendship with Dmitri Mendeleev.\textsuperscript{13}

These influences played a key role in the coloring and design of the \textit{Birch Grove} (1879) and \textit{Moonlit Night on the Dnipro} (1880) especially as they related to Kuindzhi's studies with the spectroscope.

\textit{Moonlit Night on the Dnipro} (1880), exhibited alongside \textit{Birch Grove} (1879), was a stunning nightscape lit by a phosphorescent green lunar glow. It was widely popular in Russia when exhibited at the Galerie Sedelmeyer in Paris in 1881, and the image was reproduced in great numbers. The critic Aleksei Surovin summarized the St. Petersburg's response to the painting when he wrote,

This is not just a move forward for painting, it is a leap, a vast leap. This painting has an unprecedented potency of colors. The impression it gives is a decidedly magical one; it is not painting, but nature herself. . . . The moon is a real moon and it is really shining. The river is a real river, it really does glitter and gleam; you can see the ripple and you can almost guess whither, in which direction, the Dnipro is bearing its waters. The shadows and half-shadows, the lights, the air, the faint mist, everything is expressed in such a way that you wonder how paints could express it. . . . Nowhere in the world is there such a painting as this.\textsuperscript{14}

Kuindzhi had achieved his goal of truthfully reproducing nature including elements that the viewer himself did not even recognize existed in nature. It is highly unlikely that the casual observer realized that he saw green in the light of the moon or red in the shadows of trees, but that did not mean that they were not real or present. William Ostwald (1853-1932) expressed in his book, \textit{Color Science} (1931-1933), that man did not always see the complementary colors of nature with the naked eye because of

\textsuperscript{13}Ibid., 16.

\textsuperscript{14}Ibid., 16.
conditioning, even though his eyes were often capable of the task. He stated that “The Sensation of Contrast, is . . . profoundly modified by our knowledge of the exact color surface that is influenced.” In other words when green casts a shadow, the shadow contains the complementary hue of red, but our eye has trouble seeing the red because it is influenced by the green. Ostwald further noted, “Our receptive organ [eye] does not afford a specific response to every specific variety of light.” Yet, careful and considerate inspection, especially with the aid of the spectroscope, could reveal the complementary hues to careful observers. Sydney Perkowitz, author of Empire of Light: A History of Discovery in Science and Art (1996), explained this phenomenon of conditioned response to color in contemporary terms when he stated that “the brain and the eye together are like a color-correcting, auto-focusing camera that also knows to direct its own attention.” This hypothetical, auto-correcting, auto-focusing camera acts in contrast to how a real camera performs. A real camera records colors that the photographer may not have detected with his own eyes, but the Perkowitz’s hypothetical camera sees only conditioned responses. In contrast to Perkowitz’s hypothetical camera, Kuindzhi acted as an objective camera, providing the viewer of his paintings, with a heightened, but not unreal sense of their own environment.

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16Ibid., 115.

Obviously, Kuindzhi’s mastery of the spectroscope played an important role in heightening his sensitivity to invisible color. Less obvious, at least initially, was how the spectroscope affected the design of his canvases, especially *Birch Grove* (1879) and *Moonlit Night on the Dnipro* (1880). Refinement of spectroscope technology revealed what is called an absorption spectrum, or a pattern of “hundreds of narrow dark regions,” in between colored wavelengths of light, “where the sun did not seem to shine.”¹⁸ These bands of light and shadow acted like a fingerprint, providing the exclusive composition of atoms, photons and electrons that composed an element. As Perkowitz explained,

What causes the dark Fraunhofer regions is that radiation from the ultrahot core of the sun is selectively absorbed by the cooler stuff as it makes its way outward. Fraunhofer did not know it, but he was observing the quantum effect – photons exciting electrons between atomic energy levels. The sequence of dark lines is a fingerprint of the composition of the sun or any star, for each chemical element has its own unique set of atomic transactions.¹⁹

Potentially, the zigzag pattern of contrasting lights and darks, the play of dark and light bands of color alternating in an irregular sequence from foreground to background in *Birch Grove* (1879) could also be attributed to Kuindzhi’s intuited awareness of the absorption spectrum [fig. 22]. Not only are the horizontal bands of light and dark represented by the foreground, middle and background, and the ribbon of light and dark that dissects the river, but a vertical pattern is at work as well. Each tree trunk is a band of light and shadow, not unlike the absorption spectrum for a specific element. While it might be difficult to conceive of Kuindzhi looking at nature and seeing an absorption spectrum, the method in which Kuindzhi painted his landscapes makes the analogy more

¹⁸Ibid.

¹⁹Ibid.
feasible. Remember, Kuindzhi did not paint *en plein air*, from the direct observation of nature. He created his composition in his mind, filtering images through his imagination. Nature was designed and simplified and personalized by his method of creation. Images of color, light and pattern from his spectroscope studies could not help but intrude upon his landscape creations. To Kuindzhi and to Mendeleev, science was a means for understanding nature. Kuindzhi could not paint his nature void of the knowledge of its chemical composition. In reality and in paint, science designed nature. The comparison works metaphorically as well. As noted above, the absorption spectrum could identify previously unknown elements. In fact, in 1868, helium was discovered as the result of an absorption spectrum analysis. This important gas, which makes up 25% of our universe was omnipresent, but unidentified until the fingerprint of the absorption spectrum revealed it to man.\(^{20}\) Similarly, the unusual green tonality of *Birch Grove* (1879) and *Moonlit Night on the Dnipro* (1880) was previously unseen in Russian painting, but present in nature. In this way, Kuindzhi’s paintings are picturing previously unexposed, invisible aspects of nature.

In general, spectral light could be used to identify the composition of the universe and helped scientists to establish the elemental relationship to the earth and its atmosphere. Scientists were most eager to learn all that they could about their world from the larger universe. They prepared for three years for the 1887 solar eclipse that blocked the sun’s light from the earth across a 140-mile wide belt in central east-west Russia. Posin recounted the event when he wrote,

> Though the chief labors fell to the lot of the astronomers, nevertheless, the physicists, chemists, and mathematicians stood in constant readiness with

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\(^{20}\) Atkins, *The Periodic Kingdom*, 54.
assistance to help extract every iota of information possible during the event. At the time of the eclipse, when the bright disk of the sun was obscured, the luminous flames dashing wildly into space from the sun’s periphery would be visible. A study of the solar crown – the corona – would yield information regarding the gases that flamed on the sun, the heat and activity of the great star itself. From this would come an increase in man’s knowledge of the universe in which he lived.\textsuperscript{21}

Mendeleev was so excited about the knowledge to be gained from such a rare occurrence that, at age 50, he ascended in a balloon to observe the event. Granted, Kuindzhi’s \textit{Moonlit Night on the Dnipro} (1880) was painted a few years before the excitement that surrounded the eclipse, but the anticipation over revealing the secrets of the cosmos were pervasive throughout Kuindzhi’s life. Coincidentally, \textit{Moonlit Night on the Dnipro} (1880) introduced a new compositional perspective for the artists – one from above. Bowlt attributed this “radical change in his construction of space,” to the artist’s legendary love of birds and flying.\textsuperscript{22} Indeed, these interests could have influenced his perspective, but as this thesis has documented thus far, the science of Mendeleev had a more profound influence. His proficiency with the spectroscope as a means of examining solar light, his friendship with Mendeleev, and the general excitement of the times surrounding the study of the cosmos evidently contributed to Kuindzhi’s painting style. Kuindzhi’s mature works and their almost exclusive focus on the effects of sunlight and moonlight help to confirm his overriding fascination with the world above and not from the perspective of a bird or pilot, but as an artist and a scientist. Not only did Kuindzhi’s work focus on the effects of sunset, but he boldly painted the sun and the moon in his works, especially \textit{Moonlit Night on the Dnipro} (1880) and the \textit{Red Sunset} series. This

\textsuperscript{21}Posin, \textit{Mendelev}, 255.

was an unusual phenomenon, especially in 1880. As Leonard Shlain remarked: “To cut down on glare, academic art had long ago banished the sun as a primary subject of paintings, and all these years the sun can barely be found in art.”23 He cited Van Gogh’s *The Sower* (1888) as the first painting in the West “to recognize solar energy and radiance as the primordial furnace out of which are forged all the colors. . . . The principle subject in this work is the sun.”24 While Kuindzhi was probably familiar with Van Gogh’s work from his visit to Paris in 1892, again it was not Kuindzhi’s style to copy what he saw. On his previous return to Russia after his first extensive tour of Europe between 1873 and 1875, “Kuindzhi painted works that were absolutely unlike those he had seen in European museums.”25 Further, Kuindzhi was not intimidated by academic art restrictions that prohibited the glare of natural light in paintings. Indeed, he celebrated the power of celestial light in his works as early as 1880 with *Moonlit Night on the Dnipro*. He led, rather than followed, the charge to brazenly acknowledge the powerful effects of moonlight and sunlight in painting.

As noted earlier, before boldly asserting his independent spirit (a more accurate description of his withdrawal from exhibiting than recluse) Kuindzhi had to navigate St. Petersburg’s intellectual culture, which in the area of painting, was dominated by the *Peredvizhniks*. In 1863, a group of fourteen artists from the Academy in St. Petersburg, led by Ivan Kramskoi, resigned from the Academy rather than paint the required diploma-paintings on mythological themes. The artists, sympathizing with the populist

23 Shlain, 175.


movement of the times, believed that their art should be more representative of social concerns, primarily, nationalism and democracy. By 1870, this group became known as the *Tovarishestvo peredvizhnikh khudozhestvennikh vystavok* [Society for traveling art exhibitions], or commonly referred to as the *Peredvizhniki*. With their themes of realism, populism and nationalism, the artists’ ambitions were to create art that readily communicated to the public in the communities where they traveled and exhibited their art. Consequently, the painting remained rather academic in style and narrative in theme. It was only the national and democratic subject matter of local landscapes and peasant scenes that defied the Academy. It was in this artistic environment that Kuindzhi came to St. Petersburg and, shortly after his graduation from the Academy, joined the *Peredvizhniki*.

Kuindzhi only produced two works that could be considered consistent with the ideals of the *Peredvizhniki*, one was entitled *Deserted Village* (1874) [fig. 3] and the other *The Chumak Road* (1875). They are arguably his most uninspired canvases. *Deserted Village* (1874) is particularly bleak with its nearly monochromatic greenish-brown color washed over a village of peasant huts and a single cow and a barren tree. The sky is equally dull with little hint of the dramatic skies of Kuindzhi’s more characteristic works. Kuindzhi’s *Peredvizhniki* works exhibit an inertia caused by the isolation and loneliness underscored in landscapes devoid of human and natural powers. Manin assumed that these *Peredvizhniki* works demonstrated how Kuindzhi allowed “ethnic problems dominated over [his] aesthetic feelings.”26 Manin’s hypothesis does not merit further discussion, however, for Kuindzhi’s short-lived stylistic conformities to the

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*Peredvizhniki* unlikely had enough influence to result in the artist’s introduction of issues of human destiny and politics into his painting formula.

By the time he painted *Birch Grove* in 1879, Kuindzhi’s confidence in his own style overrode the pressure to conform. This wildly popular painting executed with a flair for individualism, despite its acceptable landscape theme resulted in his resignation from the *Peredvizhniki*. In January, 1880, Kuindzhi wrote to the governing body of the *peredvizhniki* stating, “It is such that I wish to resign from the society in order to assume the governing of the distribution of my fund.”\(^{27}\) Kuindzhi simply did not belong amongst the *Peredvizhniki*. To underscore this point, a comparison of his work to that of Baron M.K. Klodt von Jurgensburg is useful.\(^{28}\)

Alan Bird, author of *A History of Russian Painting*, spoke of the “dullness of [Klodt’s] landscape work.”\(^{29}\) Klodt received numerous scholarships and awards for academic excellence, but his work was pitifully unimaginative, the exact antithesis of the untrained or untrainable, but marvelously brilliant and popular Kuindzhi. A visual comparison of the works of Kuindzhi and Klodt at the fifth exhibition of *Peredvizhniki* artists in 1876, vividly illustrates their vastly disparate approaches to landscape painting. Kuindzhi exhibited *Ukrainian Night* (1876) [Fig. 23], one of his first luminescent work complete with his unusually simplified tree forms and vivid violet and green sheen of the moonlight. In contrast, Klodt exhibited a barren road scene with a carriage kicking up

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\(^{29}\) Ibid.
dust past a pathetic and lone tree entitled *Timber Yard in Midday* (1876) [Fig. 24]. Even Kuindzhi’s unexciting *Deserted Village* (1874) and *The Chumak Road* (1874) do not compare to Klodt’s deadening painting style. Klodt’s painting style seemed forced, as if he was trying too hard to create what he thought was the quintessential response to the demands of the *Peredvizhniki*. Emotion is masked by his inability to respond to his subject or by his lack of talent, while Kuindzhi’s works are lacking because of his despair at the suppression of his creative inspirations. Kuindzhi shed his inhibitions by the time he exhibited *Ukrainian Night*. Klodt, however, never rose above his limitations.

Interestingly, Benois found fault with both Klodt and Kuindzhi. Not only did he find Kuindzhi’s individualistic works to be provincial, but he was also offended by Klodt’s unsophisticated representation of Russian culture:

> Nothing but dry, sentimental landscapes, full of studied arrangements such as Dusseldorf and Munich manufactured by thousands at that time. In most of his paintings, only the izbas (cottages), hurdles, and the costumes of the figures betray their Russian origin.³⁰

Benois was disturbed by the backwardness of Russian culture that stymied the flowering of Russian art. He longed for a Russian Renaissance that he believed could not occur in the current atmosphere of Russian malaise and despair. All around him he observed uneven flashes of the brilliance of the Russian spirit that lacked direction and stamina, stifled by provinciality. For Benois, unless Klodt and Kuindzhi rose above their unwillingness or inability to conform to the orderly stylistic qualities reminiscent of neoclassical Europe, he found them mere contributors to the inconsistency and crudeness of Russia’s culture. Benois’ rather myopic view mirrored that of the *Mir Iskusstvo*

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[World of Art] movement founded in 1898, for which he was the aesthetic and principal leader. Its members clung to the past, a time before the Peredvizhniki who they believed compromised the purity of painting through the predominance of socially and politically motivated painting. Instead of trumpeting individualism, however, they reverted to neoclassicist tendencies of the early nineteenth century. They were clearly frightened by abstract painting and as Dmitri Sarabianov stated, “They underestimated impressionism . . . and were rather intimidated by all aspects of the avant-garde,” nevertheless, Benois’ *A History of Russian Painting*, remains “pertinent today.”31 It is with Benois’ influential, yet negatively inclined opinion toward both the Peredvizhniki and progressive painting techniques that a comparison of the birch grove paintings of Kuindzhi and Issak Nikolaevich Levitan is undertaken.

A comparison of the birch grove paintings of landscapists Kuindzhi and Levitan (1860-1890) serves a dual purpose in this analysis. Not only does it provide an example of Russian painting that Benois found to be acceptable, but it also acts as a means of illustrating the startling nature of Kuindzhi’s works as they may have been experienced by his contemporaries. Levitan, Kuindzhi’s junior of twenty years, was also a member of the Peredvizhniki. For Benois, Levitan rose above the provinciality of Russian painting and “stood on a firm and quite separate ground.”32 Benois not only praised Levitan because he equaled the landscape masters of the West, “Constable, Daubigny and Dupré included, but also because he “helped Russia to found a nationalist school of landscape

31 Sarabianov, *Russian Art*, 222-223.

32 Ibid., 162.
painting.”\textsuperscript{33} While he credited Levitan with learning the painting techniques of the West and harmonizing it with the indigenous character and charm of the Russian landscape, he chastised Kuindzhi for not learning from the West and for his failure to “create anything absolutely beautiful and artistically mature.”\textsuperscript{34} In general, Levitan’s \textit{Birch Grove} (1885-1889) [fig. 25] is gently pleasing to the eye, not startling like Kuindzhi’s painting. As in Kuindzhi’s painting, the tops of the trees are cut off, but not as abruptly or unnaturally. Levitan’s painting invites the viewer to step into the thick green grass and participate in the scene. The foliage of Levitan’s painting blankets and protects the viewer in contrast to Kuindzhi’s birches that are disturbingly cropped before their canopy can be revealed. Levitan’s light is bright and consistently filtered throughout the painting; the light is a complement to nature, not one of its subjects. It does not penetrate or have form, color, or weight of its own, but it simply and graciously highlights the trees and grasses in a broken and diffused manner. Further, Levitan’s birch groves are a comforting reminder of simpler times in Russia, before industrialization or at least isolated from it. In contrast, Kuindzhi’s painting gives us a hint that man has been there before by leaving a tree stump amidst his grove. Levitan’s work is about nature before man was challenged by the knowledge of its complexity. It is about the past. Kuindzhi’s work is modern, abstract and certainly about the future, the future of man, science, nature and painting.

While neither work is better understood by Benois’ value judgements, the context of Russian artistic opinion in the later nineteenth century is critical to understanding why Kuindzhi’s painting was rejected by much of the intellectual establishment. For all their

\textsuperscript{33}\textit{Ibid.}

\textsuperscript{34}\textit{Ibid.}, 158.
differences, both the Peredvizhniki and Mir Iskusstvo [World of Art] were simply afraid of what they did not understand. And, Kuindzhi’s paintings have never been readily understood. Even now, with the revelation that Kuindzhi’s paintings may have been primarily inspired by science, they retain their aloofness. For just as science was becoming more complex and abstract in the tradition of modernism, so were Kuindzhi’s paintings.

Kramskoi expressed a more sympathetic opinion of Kuindzhi than Benois, but he too was troubled by what he did not understand about Kuindzhi’s work. As noted earlier, he was especially concerned with Kuindzhi’s disregard for the integrity of his paint and the permanence of his paintings. Emotionally, Kramskoi did not know how to react to Kuindzhi’s paintings. The yellow-green of the moonlight and purply-pink of his shadows in Evening in Ukraine (1878) [fig. 26] both puzzled and pleased Kramskoi. He was indeed fascinated with the poetry of Kuindzhi’s paintings, but the technique and simplistically rendered trees were alien to him. In an 1878, in a letter to Repin, Kramskoi declared Kuindzhi’s work to be crude, primitive and offensive. Yet, he acknowledged the lovingly represented peasant huts in Evening in Ukraine (1878) and even admitted to having fleetingly seen the same colored glow upon their surfaces under the moonlit sky. He even noted the usefulness of spectral analysis as a teaching tool for artists, but he questioned Kuindzhi’s need to reveal what he learned with such alarming bluntness. He claimed that Kuindzhi’s use of color and light was jarring and confusing to the viewer, even one familiar with looking at paintings, for knowledge of spectral light was not necessarily commonplace. Kramskoi questioned Kuindzhi’s wisdom in revealing such invisible aspects of nature in his painting. For Kramskoi, this type of painting could
ultimately only repel the viewer, causing him to turn away in disgust and offense. To remove his work from reality and distance it from its viewer and its mission as a vehicle of social consciousness, was tantamount to artistic irresponsibility. Kramskoi summarized his feelings toward Kuindzhi’s work when he stated: “In short, I do not understand Kuindzhi.”

Kramskoi’s position within Russian art was firm, but he was revered more as a philosopher than as an artist. Dmitri Sarabianov postulated that “Kramskoi was not a talented artist, but he was a profound thinker. . . .” Even in one of his best works, Christ in the Wilderness (1872) [fig. 27], the prevailing thought was that Kramskoi “failed pictorially: the painting lacks integration, all the details of the landscape are too dryly depicted, and the stones and earth recall plaster casts.” The pattern is a familiar one: an artist proficient in academic techniques, but lacking in the ability to produce inspired canvases – all of which compounds the struggle to understand Kuindzhi’s works. As did Repin, so too did Kramskoi sense that Kuindzhi was striving for something that they did not yet understand. For Kramskoi, this “something” was too overwhelming and unregulated to comprehend, especially as it belonged to a future not yet apprehensible. Kuindzhi clearly surpassed academicians like Klodt, Kramskoi, and even Repin, in originality; his appreciation for the plasticity of paint and his ability to anticipate the future of both art and science was unprecedented.

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35 Kramskoi to Ilya Repin, March 26, 1878, Tovarishestvo peredvizhnihkh khudozhestvennikh vystavok: pisma, dokumenti, vol. 1 #134, 159-160.

36 Sarabianov, Russian Art, 121.

37 Ibid., 123.
Repin's perspective on Kuindzhi was particularly important because of the former’s stature as the “father of Russian realism.” Repin’s work spanned both the nineteenth and twentieth centuries. He often painted with a brilliancy of color that set him apart from his contemporaries. Even though his work clearly broke with the formal conventions of the day, his main concern was to make a social comment on Russian life of the time. One of his most famous works, *The Barge haulers on the Volga* (1870-1873) [fig. 28], is representative of this theme. It focused on the challenging physical labor of the common man, the drudgery of life for all those engaged in this debilitating work. Only the young boy wearing a white shirt looks up and out and grabs at the yoke across his chest to extricate himself from the bonds that meld the others into one. Looking up and out, he is the only one to unshackle himself from the hopeless. Here, in the youth of Russia, perhaps there was hope for a new way of life, a way out of the difficult physical struggle of the daily life of the working class. As early as 1870, at the time that Kuindzhi was engaged in creating *Lake Ladoga* and Repin was painting *Barge haulers*, the stark contrast in the two artists’ approach to painting was made readily apparent. Kuindzhi was unconcerned with the consequences of human struggle, obviously more fascinated with depicting the effects of nature as a way to brush against such themes. Repin's nature was merely a stage for human drama, his paint is not about innovative effects, but an instrument for dramatically illustrating a message. Nevertheless, as different as these two artists were, Repin believed Kuindzhi to be the true artistic genius. Unfortunately, Repin’s regard for Kuindzhi did not have significant influence on the future of Russian art scholarship.
Kuindzhi was at the Academy at the same time as Repin, and traveled to Paris in 1873, while Repin was in residence there. Kuindzhi is not mentioned in either of Elizabeth Valkenier’s chapters dedicated to these topics in her book *Ilya Repin and the World of Russian Art* (1990). And while there might not be a specific reason to mention this contact, it is somewhat unusual considering that Kuindzhi is pictured with Repin in a rather small gathering of Russian art students and their families in Paris [fig. 29].

Repin’s high regard for Kuindzhi was not considered important as Valkenier outlined Repin’s life and the world of Russian artists. He was not considered central to understanding Russian art of the time. Unfortunately, such a perspective selectively chose to ignore a significant observation by Repin himself that perhaps resulted not only in a distorted history of Repin’s heritage, but that of the larger world of Russian art. After all, even Benois, whose distaste for Kuindzhi was well documented, recognized that “traces of Kuindzhi’s influence [could] be found perhaps in the works of Repin and Levitan.”

There is little doubt that nineteenth century prejudices continue to linger in contemporary accounts of Kuindzhi’s work. These prejudices and Kuindzhi’s unusual style left him largely unexamined by scholars outside of Russia. M.P. Nevedomsky published two books on the artist in 1913 and 1937; Manin published several books

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38Elizabeth Valkenier, *Ilya Repin and the World of Russian Art* (New York: Columbia University Press, 1990), 50. While the photograph’s caption does not identify Kuindzhi, this author believes that the back row, far left man is indeed the artist. This identification is based upon comparisons to known photographs of Kuindzhi and his travel dates to Paris.

between 1976 and 1990, and at least one article. The first article written on Kuindzhi in the English language was by Bowlt in 1975 and only after the Metropolitan Museum of Art acquired *Red Sunset on the Dnipro* [1905-1908]. Bowlt’s subsequent article entitled, “A Russian Luminist School: The Work of Arkhip Kuindzhi,” (1976), sought to present Kuindzhi as a luminist. Bowlt’s examination of Kuindzhi as a member of an artistic school that existed in the mid-nineteenth century, primarily in America, brought a new and interesting perspective to the analysis of Kuindzhi’s style.

Importantly, Bowlt’s review of Kuindzhi’s work definitively freed the artist from the umbrella of impressionism. Bowlt distinguished Kuindzhi’s treatment of light from that of the impressionists by pointing out that “Kuindzhi conceived light almost as a concrete phenomenon and endeavored to transmit a fullness and density quite alien to the analytical effects of Monet or Sisley.” The absence of a shared formal treatment of light between Kuindzhi and the impressionists combined with the impressionists’ superficial regard for science firmly disassociated Kuindzhi from any potential impressionist counterparts.

But is it reasonable to explain Kuindzhi’s use of light within the context of luminism? Even Bowlt acknowledged that “It is, of course, a hazardous and perhaps fruitless task to attempt to establish in retrospect the existence of a Russian luminist school. . . .” Luminism was “invented” in America in the mid-twentieth century to

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42 As mentioned earlier, Waddington dismissed the impressionists as superficially interested in science.

reversely unite characteristics of mid-nineteenth century American landscape painting in order to identify an indigenously American school of art.\textsuperscript{44} Therefore, it was predicated on issues that were motivated by national sentiment and national identity. Consequently, the most discrediting aspect of such a comparison of Russian and American movements was the issue of nationalism and indeed Bowlt acknowledged that Russian and American luminism could not share the same inspirational forces. American luminists drew much of their inspiration from the American landscape, Emersonian transcendentalism, nineteenth-century American religiosity, and American primitive folk art. It was only after these affectations took root that the interest in American luminism grew, and that luminism came to be perceived internationally by twentieth-century scholars. In his chapter “Luminism in Context: A New View,” in the 1980 exhibition catalogue, \textit{American Light: The Luminist Movement 1850-1875}, Theodore Stebbins stated:

Luminism or something very like it can be found everywhere in Europe. Most closely related of all is the work of Russian painters who were about the same distance from the art centers of Paris and Rome, London and Hamburg, as were their American counterparts. While in most European countries the luminist variants predated their American counterparts, this is not the case in Russia. There the parallel between styles appears to be nearly exact.\textsuperscript{45}

Stebbins’ approach was essentially too sweeping, too simplistic and too brief to maintain any integrity beyond a most superficial examination especially when he compared Russian Grigory V. Sokora’s (1823-1864) \textit{The Fisherfolk} (c.1845-1850) [Fig. 30] and American William Sidney Mount’s \textit{Eel Spearing at Setauket} (1845) [Fig. 31].

\textsuperscript{44}According to Novak, John Baur first identified a luminist school in “American Luminism,” \textit{Perspectives USA}, No. 9 (autumn 1954), 90-98.
Stebbins claimed that the paintings correspond to each other in mood, construction and style – that their stylistic synergies were a result of a luminist tendency. While the paintings may be executed in a similar manner, the mood and construction of Mount’s work is driven by strong racial themes (illustrated here by the black slave woman working the boat) that unite him more closely with genre rather than landscape painting. Sokora’s painting is supposedly an emotional composition designed to evoke a sense of place. Sarabianov described Sokora’s work as “full of optimistic lyricism and calm expressiveness,” clearly absent of any of the underlying tensions of racism that will come to dominate Mount’s works. Even compositionally the comparison ultimately falls apart, with Mount’s figures receiving much greater emphasis and specificity as they would in a genre scene and Sokora’s generalized representations of fisherfolk merely decorating the landscape.

Obviously cautious of making broad and rather useless comparisons like those of Stebbins, Bowlt was careful to be specific, to outline the characteristics of Russian luminism that shared common ground with the American version. He especially placed emphasis on the following:

The general interest in photography in mid-late nineteenth century Russia among both artists (Kramskoi, Kuindzhi, Repin, etc.) and the public, the very topography of the Russian landscape (containing the horizontal planes so beloved by the American luminists), the discoveries of Russian physicists could not fail to affect the optical sense of the Russian artist. In painting such circumstances generated qualities readily identifiable as luminist -- brilliant and refractive light, strong

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46Class Notes, Nineteenth Century American Art, Dr. Barbara Groseclose, fall 1991.

47Sarabianov, Russian Art, 56.
horizontal structure, foreground detail, spatial panorama – qualities manifest above all, in the work of Kuindzhi.\footnote{Ibid.}

Bowlt, necessarily, relied heavily on a resemblance of the formal elements of American and Russian luminism to build his case for comparison. Generally speaking, the formal characteristics of American luminism include a predominant interest in light; the use of thinly applied paint; a low horizon line; an absence of the painter; and the use of measurable space, a technique attributed to an interest in mechanics and mathematics in America. Finally, American luminists tended to create small, intimate compositions, of the utmost simplicity.\footnote{This list if the formal characteristics of luminism was compiled from the three following sources: 1.) Class notes, Nineteenth Century American Art, Groseclose 2.) Barbara Novak, American Painting:} Kuindzhi and the American luminists do share subject matter and luminosity. The differences that divide Kuindzhi from the American landscapists, however, are too numerous and fundamental to reveal a true and genuine kinship.

Beginning on the surface of the painting, Kuindzhi’s works, except perhaps for Lake Ladoga (1870-1873) [fig. 14], which was executed with thinly applied paint, were painted with a vigor and texture of an artist who marveled at the texture of paint. Through strong traces of his brushwork, Kuindzhi is very obviously “present” in his works. The luminists, in contrast, had a more classical, academic approach to paint application that is to say that the surfaces of their canvases are like glass with barely a hint of an artist’s mark. In addition, the paintings of the luminists are rather subtle and conservative in color and tone, except for select compositions by Martin Johnson Heade such as Approaching Thunder Storm (1859) [fig. 32], where the deep navy-black water contrasts brilliantly with a white sail and bright green grasses.
However, the predominant characteristics that divide Kuindzhi from the American luminists are related to science. To be sure, the American luminists were also interested in science, but in large part their interest was aligned with the type of interests that predominated science before 1860, what Shlain called “sharp-edge black-and-white numbers and measurable quantities,” rather than the post-1860 occupation with the physical spectrum of colors and the discoveries of the stars. As Barbara Novak, author of *American Painting of the Nineteenth Century: Realism, Idealism and the American Experience* (1979), observed, “Measure was one of the most important aspects of luminist sensibility. . . .” Most artists were preoccupied with measure and mathematics as an outgrowth of technological innovation or a fascination with the machine. American artists often used mechanical drawings to gauge perspective and to place each object, tree and distance in realistic perspective. Fitz Hugh Lane, for example, used such a technique to place his boat in one of his most renowned works, *Brace’s Rock Eastern Point, Gloucester* (1863) [fig. 33]. On the contrary, Kuindzhi’s interest in science was less exacting and more abstract. While Lane’s paintings assured the viewer that the world was as he expected, predictable and controlled, Kuindzhi’s paintings challenged the viewer to wonder what other mysteries of nature might yet be revealed. Interestingly, however, the treatment of detail (especially the foreground) by Lane, Heade and Kuindzhi shared a quality of simplification and even hinted at the surreal. In *Brace’s Rock Eastern Point, Gloucester* (1863), Lane’s middle ground of piled rocks is more like

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a bundle of simplified and perfected round shapes than a pile of nature’s imperfect, ragged-edge formations. They do not match the minutely detailed foreground grasses and rocks. Heade’s rock formations in *Approaching Storm, Beach near Newport* (1860-1870) [fig. 34], are fantastically designed with an almost lunar-shaped quality. They appear to surge upward in configuration as if to mimic and meet the rise and fall of the approaching ocean waves. Heade’s movement toward uniformity of design across his compositional elements comes closest to Kuindzhi’s harmonious design of earth and sky in *Red Sunset on the Dnipro* (1905-1908) [fig. 1]. Heade’s motivation, however, was often attributed to a primitivist vision of “equally emphasized detail.”52 Kuindzhi’s style was not driven by an impulse to convey a primitivist technique, but a deliberate desire to design the entire canvas in order to emphasize the unity of the organic and the inorganic elements of earth and sky – to formally unite the seen and unseen aspects of nature. As his body of works illustrates, Kuindzhi’s approach was deliberate, scientifically motivated, and perfected over the years. One need only compare *Lake Ladoga* (1870-1873) [fig. 14], *Birch Grove* (1879) [fig. 5], and *Red Sunset on the Dnipro* (1905-1908) [fig. 1] to observe Kuindzhi’s increasingly progressive imposition of harmonious design upon nature and canvas. In the early work, *Lake Ladoga* (1870-1873), the foreground detail is not only emphasized, but it is exaggerated to the point of unbalancing the composition. In *Birch Grove* (1879), the design of the elements of the landscape as a singular unit first began to take shape. Because the artist was transitioning from traditional representation into his more modern science-inspired individualism, traces of

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traditional realism and representation, like the tree in the background on the far right, compete with the more simplified forms like the tree in the center background that abruptly divides the canvas in half. The result is a somewhat disjointed style. By the time that Kuindzhi painted *Red Sunset on the Dnieper* (1905-1908), however, the balance and harmony that characterizes his mature work finally materialized.

A critical issue for both Kuindzhi and the American luminists was their treatment of light. In all of the paintings there seems to be an internal source of light that illuminates their canvases overall. The American luminists, it would seem, however, did not invest each element of their composition, i.e., each nondescript tree, stick and weed, with their own glow as Kuindzhi did in *Red Sunset on the Dnieper* (1905-1908). Heade comes closest to paralleling Kuindzhi’s style in his marsh series by infusing his water and haystacks with an inner luminosity, e.g., *Sunset over the Marshes* (ca. 1863) [fig. 35]. Elements in Heade’s paintings also seem to glow irrespective of logic. But such an omnipresent glow of earthly and atmospheric elements in luminists paintings was not about scientifically and physically uniting the earth and the stars, but more likely, a mission to accomplish the divine fusing of matter and spirit, to acknowledge God’s omnipresence.53 In this manner, American luminism is closer to German romanticism than the art of Kuindzhi.

Ultimately, once science is accepted as Kuindzhi’s premier motivation for painting, the comparison between American luminist paintings and the landscapes of Kuindzhi fails despite some strikingly similar parallels in style and subject matter.

52*Ibid.* 128. Additionally, Novak extensively explored the idea that the design elements of American primitivism influenced American luminism, 99-104.
Ironically, in the end, even Bowlt appeared to abandon the idea of Kuindzhi as a luminist, instead favoring nationalism as a truer source for Kuindzhi's inspiration:

> There is no doubt that the meteorological and atmospheric peculiarities of the Ukraine – its aerial clarity and refractivity, its flatness, its vast expanse of sky – did (and does) occasion a unique perception of light: unlike the big city or the intimate countryside of England, where light and space are delineated so clearly, the light of the Ukrainian steppes takes on a curious density and omnipresence.\(^{54}\)

While an intriguing alternative explanation for the glowing foreground of *Red Sunset on the Dnipro*’s (1905-1908), nationalism ultimately did not help to explain Kuindzhi’s works. If Kuindzhi was concerned with portraying nationalistic pride in his paintings, why were so many of the titles of his mature works deliberately non-site specific? The American luminists, whether out of a sense of place or a desire to be precise and accurate, titled their works with specific locations. For example, several of Heade’s titles include: *Approaching Storm, Beach Near Newport; Cloudy Day, Rhode Island; Sunset Black Rock, Connecticut; Sunset on Long Beach*. Additionally, Lane’s works include, *Brace’s Rock, Eastern Point, Gloucester and Owl’s Head, Penobscot Bay, Maine*.\(^{55}\) In contrast, Kuindzhi’s titles, especially those labeling his later works, usually focus on the effect of nature, not the place where the effect occurred. The addition of location names like *Dnipro* were added to Kuindzhi’s original *Moonlit Night* and *Red Sunset* titles after his death to give the paintings a national identity. Indeed, if Kuindzhi had such nationalistic motivations, and expressed them, he could have perhaps remained within the fold of the

\(^{53}\)Ibid., 98.


\(^{55}\)The author does not know, however, the genesis of these titles as I do with Kuindzhi’s titles. It is possible that the luminists’ works were re-titled over time, but no information has been uncovered by this author to lead to such a conclusion.
*Peredvizhniki*, although his style was the chief issue of contention. There is, however, no indication in the documentary evidence on Kuindzhi, albeit sparse, or in his landscape paintings of non-specific sites that would lead to the conclusion that nationalism was a dominant concern for the artist. It would seem not an issue after all.

The goal of this chapter was not to force Kuindzhi’s art to retrospectively conform to the artifices of a school, but to identity why such an approach was not applicable to Kuindzhi. The objective was simply to bring cohesive unity to a body of his works by linking his stylistic elements to science, the artist’s primary source of inspiration as identified by this thesis. Much of the dissatisfaction associated with the classification of Kuindzhi’s works arises from the fact that the inspiration culled from movements of the day was not applicable to Kuindzhi. As Kandinsky might say, there was no “no similarity of inner tendency,” between Kuindzhi and the romanticists, impressionists or luminists.\(^{56}\) In some cases, especially with luminism, formal comparisons offer a pattern of possibilities, but ultimately such comparisons result in a forced and incomplete analysis of his paintings. There may be no definitive answer to the question: What inspired Kuindzhi to paint the way he painted? But, his interest in Mendeleev’s science can explain many of the mysteries of his work. The next question, and the conclusion to this thesis is: If Mendeleev and science are accepted as primary influences upon Kuindzhi’s creative process, how does this change his position within the history of Russian art?

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\(^{56}\)Vassily Vasilievich Kandinsky, *Concerning the Spiritual in Art*, translated with an introduction by M.T.H. Sadler (New York: Dover Publications, 1977), 1. In describing the external similarities that united modern art and primitivism, Kandinsky stated: “When there is a similarity of inner tendency in the whole moral and spiritual atmosphere, a similarity of ideals... a similarity in the inner feeling of any one period to another, the logical result will be a revival of the external forms which served to express those inner feelings in an earlier age.” Such a tendency did not apply to the comparisons explored here.
CHAPTER 4

Conclusion: Kuindzhi and the Next Generation

Comparisons of Kuindzhi’s painting style to that of artists and movements that preceded or paralleled his period of creativity fails to satisfyingly explain or classify his work. A more fruitful way of attending to Kuindzhi’s labor is to regard his work as looking forward rather than backward. Indeed, this thesis argues that Kuindzhi found his role in the Western art-historical continuum by anticipating the future rather than reacting to the past. Kuindzhi’s response to science in paint can be included in a discussion of some of the art of the foremost founders of modern art in Russia and Western Europe. Vassily Vasilievich Kandinsky (1866-1944), Pablo Picasso (1881-1973), Marcel Duchamp (1887-1968), Mikhail Fedorovich Larionov (1881-1964), Kazimir Severinovich Malevich (1878-1935), and Naum Gabo (1890-1977) all incorporated the ideas of modern science into their art, but they did so approximately thirty-forty years after Kuindzhi. Kuindzhi reacted like a modern artist to modern science before either discipline was supposedly seriously engaged with the other.¹ Together with Mendeleev, Kuindzhi anticipated the future, thinking like men and women who were a generation ahead of him and importantly planting the seeds of a science-inspired artistic culture that came to fruition in the Russian avant-garde.
In Russia, Larionov’s interest in light fascinatingly echoed Kuindzhi’s treatment of the same subject. A comparison of these two artists of different generations, cities, and schools is of particular interest because their artistic connection suggests an early, indigenous Russian interest in the incorporation of modern science in Russian painting. Larionov began his career exhibiting his work with the Mir Iskusstvo [World of Art] movement and looked to the West for his inspiration. Eventually, he changed his focus, adopting a nationalistic stance and looking inward to folk art, along with his partner Natalya Sergeevna Goncharova (1881-1962), to found a Russian art. Most pertinent for comparing Larionov to Kuindzhi is certainly their shared interest in the science of light, which in Larionov’s case led to the development of rayism. Anthony Parton, author of Mikhail Larionov and the Russian Avant-Garde (1993), defined rayism thus:

Rayism was based upon a theory of perception that Larionov elaborated principally between 1912 and 1914. This theory stated that reflected rays of light from everyday objects intersect each other to create what he calls ‘immaterial objects’ and ‘intangible special forms’ which are possible for the artists to paint.

Nearly forty years earlier, Kuindzhi practiced what Larionov would later preach by using the simple instrument of the spectroscope to capture the invisible realities of

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1 This author is using Waddington’s 1907 date as the point when modern art and science supposedly became materially aware of each other.

2 Larionov was forty years younger than Kuindzhi, studied and painted in Moscow, in contrast to Kuindzhi whose base was St. Petersburg. The two cities often, but not exclusively, produced artists of contrasting philosophies and styles. Further, while Larionov had an extremely varied and prolific career, in his early years he looked to the West, while Kuindzhi did not. Rayism is the only stage of Larionov’s career that will be examined here as pertinent to Kuindzhi.

3 “Goncharova was the first to use the term rayism, although Larionov’s interest in science (manifested particularly while he was in high school) had obviously stimulated his peculiarly refractive conception of art.” Tatiana Loguine, Goncharova et Larionova (Paris: Kincksiel, 1971), 28, in Russian Art of the Avant-Garde: Theory and Criticism, revised and enlarged edition, edited by John E. Bowit, (New York: Thames and Hudson, 1988), 92.

color and light in the landscape. Interestingly, it was of particular importance to Larionov that rayism was not considered a hybrid movement adopted from the West. Reportedly, he even altered the dates of his paintings to make it look as if his rayist ideas (including the incorporation of science in art) could only have come from within Russia.\footnote{Ibid., 47-48. According to Parton, Larionov reportedly claimed that the rayist composition Glass, was executed in 1909 instead of 1912. This manipulation of dates caused art historians to question the influence of cubism on rayism, making it seem as if Larionov's work was more independently and indigenously derived than it actually was.}

If Larionov had recognized a Russian connection to science-inspired painting through Kuindzhi, he could have perhaps placated his need to pre-date the Western European artists by citing Kuindzhi as an indigenous source of inspiration.

Larionov was deeply engaged in the formal qualities of a paint, color, line and form. He saw the artist as a kind of translator, tangibly bringing images into form that the average man could not see, not unlike how Kuindzhi gave form and color to light and air. Larionov articulated this idea in his essay, \textit{Luchizm} [Rayism], 1913: “If with regard to certain things we know that they must be as they are because science reveals this to us, we do remain certain that this is as it should be and not otherwise despite the fact that we cannot apprehend this directly by our senses.”\footnote{Ibid.} In other words, Larionov painted rays of light and the spaces in between objects created by light, because science knew them to be there even if man's senses failed to help him perceive such nuances. Larionov suggested that artists correct this inhibited sense of sight (a concept also detailed earlier in this thesis by Ostwald and Perkins) by adopting a scientific approach to painting based on the scientific knowledge of light. Parton summarized these sentiments as follows:

Consequently, if artists paint what they know instead of incorrect perceptual images of what they simply saw, they must paint the sum of reflected light-rays
from an object as well as the reflex rays from nearby objects. This, Larionov [declared] is realistic rayism, and represents ‘the most complete reality of the object.’

Rayism was therefore similar to other modern movements in art, like cubism, for it was a new way of seeing the complexities of the world and building a picture based on its true realities, realities know to the artist because of the dynamics of newly discovered science.

While Kuindzhi painted unpopulated landscapes, Larionov often depicted frenzied city environments. Yet, Kuindzhi’s The Effect of Sunset (1885-1890) [fig. 6], could be the pastoral predecessor of Larionov’s Red Rayism (1913) [fig. 36] as both paintings are illuminated by reddish-orange rays of light that create positive and negative spaces that dominate the design of the canvas. Thematically, an even closer visual comparison is Goncharova’s Yellow and Green Forest, Rayist Composition (1912) [fig. 37] and Kuindzhi’s Birch Grove (1879) [Fig. 5]. Both paintings are landscapes with trees that have a flattened perspective and formed light. While Goncharova’s work is obviously much more abstract than Kuindzhi’s painting, the overall effect is a scattered, back-and-forth arrangement of light forms that crisscross the canvas. Like Kuindzhi, Goncharova “was both an artist and an innovator.” Both artists were interested in transforming the landscape into a vision of ideas that reflected the scientific reality of their times.

Not only did rayist ideas connect backward to Kuindzhi, but they also projected forward to suprematism, one of Russia’s most original and progressive art movements. Larionov, in his discussion of rayist painting techniques and the depiction of the spaces

7 Ibid.
between rays of light came close to the ideas of nonobjective painting as they would be promoted by Malevich and his suprematist painting. Larionov proposed that painting was becoming as free as music and therefore becoming independent of imagery. Similarly, later, Malevich would base suprematism on the concept that painting no longer needed to represent nature because it could exist independent of nature, representing nothing but itself. Not only did painting no longer need an object to represent, but also according to Malevich, “The artist [could] be a creator only when forms in the picture [had] nothing in common with nature. Forms must be given life and the right to individual existence.”9 While Larionov’s paintings essentially remained dependent on nature, Parton believed that Larionov could be given credit for foreshadowing Malevich’s suprematism: “Although [Malevich] derided rayism, his later suprematist theory and practice owe a debt to Larionov as they are based on an elaboration of the esoteric, formalist, and nonobjective principles outlined in Luchizm.”10 Kuindzhi’s paintings also remained intrinsically tied to nature, but like Larionov, he was more concerned with recreating a heightened sense of nature known to him through science than faithfully representing what he saw. Further, distilling Kuindzhi’s Red Sunset on the Dnipro (1905-1908) [fig. 1] to its most essential elements of line and form, nature as subject matter recedes to the background and the strong diagonals dominate the composition. With this abstraction, the painting formally and thematically relates to Larionov’s rays and even Malevich’s diagonals in Suprematist Composition (1916-1917) [fig. 38].

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Kuindzhi had no intention of disposing of nature, his manufactured design of its elements could be said to have anticipated Malevich's nonobjective suprematist compositions.

Lastly, as this thesis has repeatedly revealed, art and science seem to most closely align when they seek to explain and reveal nature's invisible elements whether it is through image or formula. This concept was articulated by Russian artist Naum Gabo in his *Realistic Manifesto* (1920) when he stated: "the artist's task is not so straightforward and pragmatic as the scientist's; nevertheless both the artists and the scientist are promoted by the same creative urge to find a perceptible image of the hidden forces of nature. . . ."11 Gabo's words could have been describing the relationship between Kuindzhi and Mendeleev. Waddington argued, however, that Gabo took the investigation and appreciation of nature's invisible forces to a new level within the context of constructivism.12 Waddington believed that Gabo saw these hidden forces as not only on par with the visible in nature (as Kuindzhi's compositions depict them) but that perhaps the invisible forces should be given a magnified importance. In this spirit, it could be said that Gabo recognized that "life and nature conceal an infinite variety of forces and depths and aspects never seen and only faintly felt which have not less, but more importance. . . ."13 Indeed, Gabo's early *Linear Construction (no. 4)* (d.u.) [Fig. 39]

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12 Waddington believed that Gabo and his ideas were a part of the constructivist movement in Russia. While this author agrees that Gabo's ideas as presented in his *Realistic Manifesto* can be credibly linked to Kuindzhi, the encompassing of both Gabo and Kuindzhi under the umbrella of constructivism is indefensible.

does seem to gracefully promote the existence of some type of underlying structure, or skeletal form of a natural entity, perhaps a head. There are no recognizable elements in this nonobjective work, but the sense that this structure supports a known entity is palpable. The hidden forces are more than faintly felt, certainly dominating this sculpture. While the connection between Kuindzhi and Gabo may seem tenuous from a traditional art historical perspective, once the driving force behind their creations is examined from a scientific angle, the seeds of this avant-garde artist’s sculpture may also be observed in Kuindzhi’s landscape paintings.

The reinterpretation of Kuindzhi’s paintings through the lens of science frees Russian landscape painting of the later nineteenth century from the confines of didactic or lyrical interpretation. Kuindzhi’s landscapes most importantly provide a link to the avant-garde artists of Russia - to Larionov, to Malevich and even to Gabo - forming an indigenous tradition of science-inspired painting. Kuindzhi’s relationship in both style and idea to these avant-garde artists traces Russia’s most advanced developments in the twentieth century to a simple love of nature that flourished and expanded with the knowledge of modern science. Through their connection to science, Kuindzhi’s works answered Benois’ call for a synthesized history of Russian art. In order to find this continuity in Russian art history, Kuindzhi’s paintings had to be analyzed from the outside, specifically outside of the art of his times. He did not find his inspiration in Western art, in primitive Russian art, or in the social and political travails of turn-of-the-century Russia. He primarily found it in the science of nature and, more specifically, in his friendship with Dmitri Mendeleev.
Kuindzhi empowered his landscapes with science. He forced art to perceive light and atmosphere as science understood them. He gave form to light and atmosphere, hinting at their dense and organic composition. With this technique, light and air are elevated to subject matter in Kuindzhi’s landscapes. Moreover, Kuindzhi’s pictorial creations brought together rational and abstract thinking, which paved the way for modern art to embrace science. With Mendeleev’s influence, Kuindzhi usurped the cubists as “the first painters of modern times who tried to come to terms with science...”\textsuperscript{14} and retrospectively found himself a seminal place amongst the most accomplished and innovative artists of Russia.

\footnote{Gabo, \textit{Realistic Manifesto} in Gabo, Read and Martin, eds., quoted in Waddington, \textit{Behind Appearance}, 46.}
APPENDIX: ILLUSTRATIONS

1. **Arkhip Ivanovich Kuindzhi**  
   *Red Sunset on the Dnipro* (1905-1908)  
   Oil on canvas  
   134.6 x 188 cm.  
   The Metropolitan Museum of Art, New York
2. **Arkhip Ivanovich Kuindzhi**  
*Deserted Village (1874)*  
Oil on canvas  
81.7 x 165 cm.  
The State Tretyakov Gallery, Moscow
3. **Arkhip Ivanovich Kuindzhi**  
*Moonlit Night on the Dnieper* (1880)  
Oil on paper mounted on canvas  
40 x 54 cm.  
The State Russian Museum, St. Petersburg
4. Sketch by Anna Mendeleeva made from a photograph
Mendeleev, Anna and the artist Kuindzhi
5. **Arkhip Ivanovich Kuindzhi**  
*Birch Grove* (1879)  
Oil on canvas  
97 x 181 cm  
The State Tretyakov Gallery, Moscow
6. **Arkhip Ivanovich Kuindzhi**  
*The Effect of Sunset* (1885-1890)  
Oil on paper mounted on canvas  
39 x 53 cm.  
The State Russian Museum, St. Petersburg
7. **Arkhip Ivanovich Kuindzhi**
*Sunset in Winter. Seashore* (1876-1890)
Oil on oilcloth mounted on cardboard
25 x 30.2 cm.
The State Russian Museum, St. Petersburg
8. **Arkhip Ivanovich Kuindzhi**

   *Spots of Sunlight on the Hoar Frost* (1876-1890)

   The Russian State Museum, St. Petersburg
9. **Arkhip Ivanovich Kuindzhi**  
*A Cloud, Sunset* (1898-1908)  
Oil on paper mounted on canvas (oleograph)  
40 x 50.1 cm.  
The State Russian Museum, St. Petersburg
10. **Arkhip Ivanovich Kuindzhi**  
*Midday. Herd in the Steppe* (1890-1895)  
Oil on paper mounted on canvas  
42 x 51 cm.  
The State Russian Museum, St. Petersburg
11. **Vassily Vasilievich Kandinsky**  
*The White Oval* (1919)  
Oil on canvas  
80 x 93 cm.  
The State Tretyakov Gallery, Moscow
12. **Marcel Duchamp**

*Nude Descending the Staircase (No. 2) (1912)*

Oil on canvas

145 x 87.5 cm.

Philadelphia Museum of Art, The Louise and Walter Arensberg Collection
13. **Pablo Picasso**  
*Les Demoiselles d'Avignon* (1907)  
Oil on canvas  
240 x 230 cm.  
Museum of Modern Art (bequest of Lillie P. Bliss)
14. **Arkhip Ivanovich Kuindzhi**  
*Lake Ladoga (1870-1873)*  
Oil on canvas  
79 x 62.5 cm  
The State Russian Museum, St. Petersburg
15. **Arkhip Ivanovich Kuindzhi**  
*Tree Against Evening Sky. The Ukraine* (1890-1895)  
Oil on paper mounted on cardboard (oleograph)  
17.3 x 10.9 cm.  
The State Russian Museum, St. Petersburg
16. **Arkhip Ivanovich Kuindzhi**  
*Evening in the Steppe* (1876-1890)  
Oil on paper mounted on cardboard  
16.8 x 33.5 cm.  
The State Russian Museum, St. Petersburg
17. Caspar David Friedrich
*Tetschen Altar or Cross in the Mountains* (1807-1808)
Oil on canvas
115 x 110 cm.
Gemäldegalerie, Dresden
18. Caspar David Friedrich

*Trees and Bushes in the Snow (1828)*

Oil on canvas

31 x 25.5

Gemäldegalerie, Dresden
19. **Caspar David Friedrich**  
*Fir Trees in the Snow* (1828)  
Oil on canvas  
30 x 24 cm.  
Collection of Ernst von Siemens-Kunstfonds, Bayerische Staatsgemäldesammlung, Munich
20. **Arkhip Ivanovich Kuindzhi**  
*Moonlit Night in Winter Forest (1898-1908)*  
*Oil on paper on canvas*  
39 x 53.5 cm.  
The State Russian Museum, St. Petersburg
21. **Arkhip Ivanovich Kuindzhi**  
*Grove* (1898-1908)  
Oil on paper mounted on cardboard  
23.5 x 37.5 cm.  
The Russian State Museum, St. Petersburg
22. **Absorption spectrum illustration**

*Principles of Chemistry, 566-567*
23. Arkhip Ivanovich Kuindzhi
*Ukrainian Night* (1876)
Oil on canvas
79 x 162 cm.
The State Tretyakov Gallery, Moscow
24. **M.K. Klotz von Jurgensberg**  
*Timber Yard in Midday* (1876)  
Oil on canvas (?)  
The State Tretyakov Gallery, Moscow
25. **Issaïïech Levitan**  
_Birch Grove_ (1885-1889)  
Oil on paper on canvas  
28.5 x 50 cm.  
The State Tretyakov Gallery, Moscow
26. **Arkhip Ivanovich Kuindzhi**
   *Evening in Ukraine* (1878) (partly re-painted in 1901) (detail)
   Oil on canvas
   81 x 163 cm.
   The Russian State Museum, St. Petersburg
27.  Ivan Nikolaevich Kramskoi

*Christ in the Wilderness* (1872)
Oil on canvas
180 x 210 cm.
The State Tretyakov Gallery
28. **Ilya Repin**  
*Bargehaulers on the Volga (1870-1873)*  
Oil on canvas  
131.5 x 281 cm  
The State Russian Museum, St. Petersburg
29. Russian art students and their families (1874-1875)
Photograph, Kuindzhi back row, far right
Bakhmeteff Archive, Columbia University
30. **Grigory V. Sokora**

*The Fisherfolk* (ca. 1845-1850)

Oil on canvas

70 x 100 cm.

*The State Russian Museum, St. Petersburg*
31. **William Sidney Mount**  
*Eel Spearing at Setauket* (1845)  
Oil on canvas  
73 x 90 cm  
New York State Historical Association, Cooperstown, NY
32. **Martin Johnson Heade**  
*Approaching Thunder Storm*  
Oil on canvas  
56 x 100 cm  
The Metropolitan Museum of Art, New York  
Gift of Erving Wolf Foundation and Mr. and Mrs. Erving Wolf
33. **Fitz Hugh Lane**  
*Brace's Rock, Eastern Point Gloucester (ca. 1863)*  
Oil on canvas  
25 x 37.5 cm  
*Collection of Mr. John Wilmerding, Dartmouth, NH*
34. Martin Johnson Heade

*Approaching Storm, Beach near Newport* (1860-1870)

Oil on canvas

70 x 145.6 cm.

Museum of Fine Arts, Boston; M. and M. Karolik Collection
35. **Martin Johnson Heade**

*Sunset over the Marshes (ca. 1863)*

Oil on canvas

25.6 x 45.6 cm.

*Museum of Fine Arts, Boston; M. and M. Karolik Collection*
36. **Mikhail Fedorovich Larionov**  
*Red Rayism* (1913)  
Gouache on cardboard  
27 x 33 cm.  
*Private collection, Paris*
37. Natalya Sergeevna Goncharova
*Yellow and Green Forest, Rayist Composition* (1912)
Oil on canvas
102 x 85 cm.
Staatgalerie, Stuttgart
38. **Kazimir Severinovich Malevich**  
*Suprematist Composition (1916–1917)*  
Oil on canvas  
80 x 71.5 cm.  
The State Russian Museum, St. Petersburg
39. **Naum Gabo**  
*Linear Construction No. 4 (d.u.)*
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