

Metaphors of Nature:
The Vision of Cézanne, Monet, and Poincaré

by

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Dedication

to my parents

to my grandmother, Hilda

to Alanna Connors

and to Sara

Mentors in the search for words and worlds.

E poi che la sua mano a la mia puose
con lieto volto, ond'io mi confortai,
mi mise dentro a le segrete cose.

--Inferno, Canto III, 19-21.

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-καὶ γὰρ ἡ'ὄναρ ἐκ Διός ἐστιν-

--Iliad, Book I, 63.

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Introduction

Metaphor is often styled as a technical literary term denoting the transfer of a name to something other than, although in some sense analagous to, its proper definition. One sense of a world's stated meaning is expanded through this reassignment of language. Metaphor then startles language through the surprise of a newcomer to a well regulated territory. Use of metaphor requires that our comprehension of both the original world and the framework of established connotations it enters and supercedes, must change. It is in this manner that the idea of metaphor can be extended beyond the literary usage. A metaphor then may become an image for discovering, a model for discussing the way of happening upon fresh recognitions and insight. It applies when our habitual systems for thinking are disrupted or invaded by something unfamiliar, that promises to incept a new order. Ideas or methods, that seemed disparate, converge in shaping this, so former distinctions become irrelevant while others emerge. Metaphor unifies and reinterprets the way of thinking and creating and is not simply a rechristening of things. The renovation in language it demands is only a surface symptom of a more pervasive transformation of our underlying perception of the world.

Metaphor, in this sense, is accomplished through a creative integration of what may have been foreign and awkward.

Traditional relationships need not hold and may, in fact be an obstacle to the impending discovery. The basic assumptions we employ in thinking must be radically reviewed as part of the metaphoric process. The world will be perceived from such a, perhaps unexpected, orientation, that it, as well as the way of perceiving it, will take on a new character. Vision, one process of exploring, identifying, and apprehending nature, suggests the need for metaphor. It must be retrained according to the metaphorical scheme, acting each time in the light of a fresh creation. New representations of nature contending with tradition offer evidence for a vision that has participated in metaphor. Metaphor, engaged in the language of a new art or theory, is dissociated from one context in order to more clearly inquire and express what is perceived in another. The accustomed ways of seeing and speaking become inadequate--what we see and how we use language must be reconceived.

The role of metaphor in creative conceptualization is central to this thesis. The paper will reveal how it invokes an altered vision (metamorphosis in the way of painting and thinking) in the artists Cézanne and Monet, and the physicist Poincaré. The purpose of this thesis is to elucidate their way of seeing, not to trace their significance to the history of either art or science, or cross influences between them. This study will not attempt to demonstrate the effect of either art on science or science on art, but shall indicate the metaphorical vision of nature. Cézanne, Monet, and Poincaré embody in their work.

Metaphor is essentially the agent of their creation; it describes the process that brings both painting and theory to assume a new identity. The metaphorical vision is manifest through them. This change comes about at this time through a special objectivity toward nature in art and science, that seeks fundamental aesthetic ideals. Vision becomes both the signal of this objectivity and the way of its realization.

Vision, then, will take on a double complexity through the thesis, referring to the process of seeing and interpreting nature, and to the promise for a metaphorical making of worlds. In this combined sense, as an integration of perception and creation; vision embodies the total revolution of world view. The emerging paintings or theory are made possible by it; by them we recognize that vision has a new character. It may seem redundant to consider both the origin and result of the vision metaphor, but in a sense they are. The painting or theory is in itself a created and individual metaphor for nature, although in the grander sense it is the indication of a metaphorical way of seeing nature. For the artists, each painting becomes a fresh reenactment of metaphor. It is not just that the paintings are made according to a different **system** of rules, but rather a realization that any such rules are insufficient. The attitude toward nature wrought by the paintings strives for a certain immediate and intimate sense of it.

A conscientious discussion of metaphor, and how a new vision emerges from it, must itself use metaphor to explain and clarify.

The artistic and scientific subjects of this thesis exemplify how the metaphor works. To investigate them in order to systematize them would misrepresent its essential impetus. It is such characterizations that cannot acknowledge or accept metaphor, for a moment is realized through metaphor which has no place for structure. The creative works, urged into existence by an enhanced vision of things must be permitted to live as they are, free from classification. For this reason, this discourse, particularly about the artists, will attempt to be precise without employing technical language. The argument may then be more convincingly true to the creative process and still remain clear. It is essential that the thesis express a vision of the paintings, as well as the artistic vision they convey. Such an analysis breeds an understanding of the creative way of vision more lasting than mere categorization.

Cézanne

Paul Cézanne perceives the world freshly and recreates his vision of it in his paintings. Nature is the constant and, to him, elusive participant in this process of seeing and making. He seeks to release a pure sense of it through the paint, lifting it to a new context of space and color. By the metaphor of vision, nature and art reform each other's world, compelling a new insight. He accomplishes this synthesis of paint and perception in the later paintings. In one contemporary letter, he states "La thèse à développer est-quel que soit notre tempérament ou puissance en présence de la nature--de donner l'image de ce que nous voyons, en oubliant tout(ce) qui apparut avant nous!"(1) Nature is rediscovered from nature and the method of painting must change with this; the old conventions will render only what has gone before but are not appropriate for what Cézanne sees "en présence" of nature. Nature is reborn in vision, and the paintings become metaphors for this recognition altering our comprehension of both nature and art.

Cézanne grew up among the mountains of Aix-en-Provence with the companionship of Zola. Here nature became a presence familiar to him, as the pine which, raising its bushy head, "protégeait nos corps. . . de l'ardeur du soleil"(Apr.9,1858). Nature participates in these youthful fantasies as another actor. He writes in a letter "Voilà-t-il que l'atmosphère s'est

soudainement refroidie Adieu la nage" and then through a poem wishes farewell to the waves, and announces the frost and rain(May 3,1858). Although his father compelled him to study law, his appeal to the muses("de l'Hélicon, du Pinde, du Parnasse/Venez", Dec. 7, 1858) triumphed and he abandoned "ce misérable Droit" for what seemed truer to him--"je me ferai artiste"(June 20, 1859). Cézanne drew at the Academie Suisse in Paris where, meeting Monet, Renoir, and Bazille, he joined them in painting landscapes outdoors. His progress depended, then, on "beau temps", the sun's appearance guides him "jusqu'ici caché par les nuages. . . nous jette en s'en allant quelques pâles rayons"(Jan. 5, 1863) as it reveals a world fresh for painting. In 1872, Cézanne and Pissaro began to paint together. Pissaro trained him in "a discipline in seeing, which led him to replace by fresh colors all those conventional gradations"(2). Through this time, Cézanne became "very conscious of the canvas as well as of nature", he began to discover the possibilities of the painting surface and how it might represent nature. He writes to Pissaro "mais il y a des motifs qui demanderaient trois ou quatre mois de travail". A single subject might prove inexhaustible especially when it did not change with season, but as the sun brought it into color(Jul. 12, 1876). Nature, which taunts him with such great difficulties(Sep.24,1879), also offers the sun "qui nous donne un si belle lumière"(Nov. 27, 1884). During the years 1896-9, Cézanne painted more often at Aix, but also with Monet at Giverny, at Vichy, the forest of Fontainebleau, among

others. After 1900, primarily for reasons of health, he did not ~~write~~ paint beyond his native town(3). The familiar beauty of the countryside was realized in his work: "ce bon soleil de Provence nos vieux souvenirs de jeunesse de ces horizons, de ces paysages, de ces lignes inouïes, qui laissent en nous tant d'impressions profondes"(June 1899). There the sunlight, which he found so central a part of vision, illumined with a special grace transforming the landscape. In these late paintings, Cézanne explores nature with a new sense of it as a creation living apart from human traditions.

This paper will examine several paintings by Cézanne from the exhibition "Cézanne: The Late Work"(Museum of Modern Art, N. Y., fall 1977) to come to an understanding of how he perceives nature. Each painting will be explored independently and as it contributes to a fuller sense of the metaphors in his art. It will be necessary to treat each painting apart, to permit it to make an individual statement, and find in the paint and brush strokes, the clues to how Cézanne sees. By the paintings, Cézanne's extended mastery of all the materials of painting becomes evident; he expands the use of paint, brush stroke, canvas in his creation of them. Through his development of technique and insight, more of the materials of the art are integrated into his vision. They become not only the vehicle for metaphor, but a part of it. The following paragraphs outline an order of the paintings that identifies this manner of seeing and painting. Cézanne's watercolors of ledges are introductory to a

discussion of the perception of nature conveyed through the space and colors in his later paintings. The paper surface of these watercolors is divided by intercepting areas of color that set the forms of rocks and trees into relationships of fluid color and open space. He begins to wrest the rock from nature through the colors and falling light and reconstructs the method of painting to match this perception. In an oil painting of these cliffs, the paint overlaps through more dense strokes of colors in the painting space than the watercolors showed. Faceted color becomes a way of forming things and of interpreting vision. Color fragments space in the rocks and trees only to reunite it according to a new sight.

His paintings of the Mont Sainte Victoire more fully express this sense of seeing and remaking of space. They act as a progression in Cézanne's art and vision, moving from paintings that gradually step through colors to later ones where the very brush stroke is independent, an agent of colors and space. Again, as in the watercolors, the bare surface enters the expression and both paint and canvas participate in the painting. The process of painting recalls the process of vision as both discover in the mountain a fresh bounty, and impetus for creation. A painting of a garden and field clearly extends the fabric of color and space worlded by brush strokes and canvas are active across the entire painting surface; in place of traditional perspective, everything becomes vibrant in space and color. All of nature is alive in this way of seeing and

painting. Finally, two portrait paintings demonstrate how Cézanne reacts to the human form in nature. Here, expression is made, not by individual strokes but rather through many layers of colors, translucent in a dusky fashion and is not as immediate an exultation of nature.

Through this sequence of paintings, then it will be possible to indicate the way Cézanne comes to see as he attains a synthesis from nature. The paintings are the expression of his metaphor for nature, through them is made the vision that fosters a new world. Individually, they reveal the process of painting; collectively they yield a glimpse of the greater metaphor.

The examination of individual paintings begins with a watercolor, "Rocks near the Caves above Chateau Noir", 1895-1900 (Museum of Modern Art, Lillie P. Bliss Coll.: New York), as Cézanne explores the meeting of rocks and wood. The surfaces of rock are caught by the sun in bareness, while the edges and chinks are shaped with curves and color. Pencil lines bring the rock into definition by finding its curves. He forms the composition from places where the rock bends away. These edges, curving up and around with the pencil underlining, are given depth by the paint. The paint layers transparency and color with short careful strokes. It makes definite the sense of space so the planes which escape this modeling in color are equally active. The rock planes divide into two horizontal sections. Below the rocks angle strongly down and right; the bottom one rippling smoothly before it curves down with the cliffs. These

surfaces swell into an open space of sunlit rock. Above them, the central formation overhangs a weathered face with its contorted hollows inlaid in color. Repeated pencil lines ring the curves and darken the hollows, the inreaches of rock. The brown and blue layers of watercolor turn into the rock; yellow highlights the rings of browns to violet where the clefts and joints of rock converge. The watercolor moves about and into these fissures or leaves them as bare shadows in a wash of sunlight. With touches of color and line, Cézanne captures the part of rock which makes it rock, yet models the curves with the delicacy of a figure drawing. Space is modeled with the layered color and not modeled in the blank areas left to light glancing on rock. Cézanne makes boundaries from repeated pencil lines, marking the crevices and places moving away from planar surfaces, and the paint, in fluid brushes of color, gives these boundaries spatial movement, rising and curving. With color and line he delves beneath things; how surfaces twist and flow, what is still and what not. All that happens within, under and about the rocks comes to the painted surface. Half of the painting is more sunbleached, suggested in strokes of brown and blue, while the rocks at right, buttressing the other crags, mingle transparency and shadow. Cézanne draws the rocks out from their recess within nature in a play of light and depth. The rocks attain clarity and space.

In an oil painting, "Rock Ridges above Chateau Noir", 1904 (Collection Mrs. Jean Matisse, formerly Henri Matisse), strokes

of paint become the lines and color surfaces. The rock face now grows from brushes of pink browns, violet, bluegrays and greens. The strokes' directions indicate the contours of the rocks. Forked lines of brown and blue cross over and beyond the cliffs as if trees, partially transparent to the rocks and leaning out with the rocks' angles. The dense growth of tree trunks behind the rocks arc out from center, continuing the upward movement. Brush strokes in the foliage follow this curve. An intense thicket of color at bottom right echos the greens and olives of the trees above. The tree trunks between bow into and out of the painting, from a tangle of rocks and brush to a mating of sky in branches. Lines of tree trunks intercept a space where columns of sky filter through ranks of trees. The foliage swells out encompassing the sky and top corner of the painting while the shelving rocks descend in a half pyramid of one, two, and then three boulders. Rocks and trees slope, then, along diagonals converging at the lower shrubbery and rock. One branch parallels the ridge, arcing opposite the trees. Rocks and trees introduce complementary attitudes of steepness--the many tree trunks thrust a steepness of air upward that tumbles down with the rocks. The rocks here are less the sunbleached compositional planes of the watercolor but more as the trees which grow over and among them. The colors overlap in more sculptural forms and the clefts and undercuts are shaped again by these layers. Sky and trees cast reflections and shadows upon the rocks that a modeling in green and blue paint relays. The ledges participate in the oil

painting with both weight and transparency from the contours of blue and pinkbrown. In this way Cézanne interweaves trees and rocks.

Nature has curves and patches of color that Cézanne's brush strokes, as the crevices emphasized in the watercolor suggest. The forms emerge from a shaping of color about these places where nature is most intense. The sections of color reveal, not only gradations of light and shadow across the surface, but also something of the substance of the rock. Each boulder is like the paint composing it, a color inflected over other colors. The rocks are half curves bounding sunlit spaces where the watercolor transparency invades even the darker crevices. A more integral network of color and space develops in the oil painting. As paint and space intersect through them, a joint, interpenetrating metaphor of rocks and trees is expressed. Cézanne senses the running of nature through color from attitudes of sunlight and pattern in the watercolor to the more subdued modeling of forms in the oil painting. The rocks are themselves a prism, the trees a filter, for seeing all of nature. Cézanne makes visible the direct texture of color and depth in nature, purifying, not dissecting, this sense in his colors. Nature is asserted by each stroke of color as a discovery that winds its way into the whole painting.

Cézanne introduces the mountain to the association of rocks and trees in "Mont Sainte Victoire seen from Bibemus Quarry", c. 1898 (Baltimore Museum of Art). A cleft in the precipitous wall

passes from the rock field of red and green to the forestry below the mountain. A tree trunk angles between the cliffs joining the two realms of color. The notch opens as a special passage, and the tree through it, echoing the angles of the faces, both bridges and bars access past it. The rest of this space, cast in shadows of green and red, stresses the cliff's steepness. The tree framing the mountain at right snakes its way along the edge of the painting. The color of the tree trunk responds to its undulating form. It is outlined with dark blue and brown as the tree trunks in the previous painting, yet the line changes, in places distinct from the tree and other blending in color. The tree's branches curve through red to blues, with a brush stroke looser and freer than in the other trees. A pink and blue wash of sky and cloud breathes through its blue toned foliage. This tree is alighted, in a dance of notion between sky and leaves as both colors and brush are lighter than elsewhere. Another tree, left of the center cleft, sways upward as something caught in a single movement. The paint strokes, dense about the center in blues and brown greens, stretch out into shoots of emerald, red, and yellows. The branches are underlaid with a stripping of maroon that makes the green surge forth, but also links them to the red rock. These branches, as those of trees beside it, feather out across the cliffs and enter the glowing vibrance of space. The wall sundered by the cleft, is varnished with a human and fleshlike coloring. Blue grays of the parapets above melt into its ruddiness. Maroon also peeks through fissures and

highlights flexures in the rock. The exposed faces glow with browns and gold. In the left ramparts, brush strokes overlay red with blue as distinct colors, not softened together. A mound caps this gate like a castle tower, a fragment of human architecture in the natural formation. The redgold cliffs of the quarry fill the painting's foreground with the brilliance of steepness, a natural wall that, through color, adopts a human touch. The paint strokes are directed and delicate in the trees and broader expanses over the rocks. The spaces about these cliffs meet in mellow color.

The mountain is traced by a line of dark blue that alternately blends with or skirts the ridge. Violet, pink, pale blue, with accents of deeper blue, tinge the mountain. The mountain rises through pleated surfaces, each resounding the glow of sky and rock. But the pale blue dissociates it from rocks and sky as something apart. The trees below the mountain slope merge together by a turbulence of olives, blues and red. These trees act as a buffer and boundary between the mountain and split rocks, as their color fluctuate from shadows to yellow fleshtones. The mountain, pale and sketched across areas of bare canvas, still looms into the quarry with an intimacy of closeness. Its more spiritual movement both grows and diverges from the walls, outreaching the human reflections in the rocks. The mountain approaches the sky billowing about it, but its barer slopes remain separate by the blue outline.

Sky and trees, fields and mountain merge through a tempest

of color in "Mont Sainte Victoire seen from Les Lauves", 1902-4 (Kunstmuseum, Basel). There is a freedom in the color and brush strokes that sprawl across the painting, thickly applied in some regions of forest, and in others making a mosaic between paint and canvas. Colors overlap densely with greens, blue grays touched with violet or brown in the foliage along the bottom. The strokes tilt in variegated color, green on brown and yellows in blues, and direction, giving a clarity of hue as layers of tinted glass. In the bottom left corner, greens and blues are scrubbed over the canvas as a soft flurry from dark to light. Paint thickness varies across each brush stroke from a band thick in color to a more transparent veneer. The center fields are dappled in brown, greens and blues with these strokes. Red roofs of two houses slant to the light as part of the colors and angles shifting throughout the fields. Blue violet forests at right encroach into the fields of rocks and roads as a green vegetation stealing over the land. The trees at left twist through a maze colored with translucence as bushes and rocks. They feather into the field and merge in mountain and sky with one movement up and around. A road angles across the plain, its line repeated again in the band bounding mountain and plain.

The colors in this painting flicker from one richness to another, enmeshing trees and earth in their brilliance. The sky is a turbulence of greens, turquoise, and pale blue. The brushed patches swerve about with canvas showing where the strokes do not meet. The mountain rears its blue back into the midst of this

sky, and strokes of transition or blending connect it with the sky. The mountain reflects onto the blue plain before it and the gold flakes in the plain respond as if the mountaintop is a sun glancing upon its waters. The plain has the depth of water, the sky has the fullness of seas. The mountain top is left open and there is something in the untouched canvas throughout the painting which escapes direct statement.

Mountain and forest are not sculpted from color in this painting as with the others for color and form attain a freedom of their own. What made the rocks sheer and fleshlike, both part and separate from the mountain is here only in suggestion. The fields do not recede into the distance but mountain and sky and plains share the same energy of color and stroke. This loss of linear perspective produces an evenness or unity across the painting, portraying the power of all of nature. Cézanne's brush strokes do not distinguish form and color, but rather his way of seeing that allows natural colors to dazzle. He removes boundaries where there are none and reforms the sense of boundary so nature communicates with itself. Nature has an identity of its own which Cézanne strives to be true to, to join the visual and the natural, releasing light and color and permanence. He does not abstract from it but senses what this quality of nature is. Trees, earth, mountain, and sky compose the nature his metaphors of color and form inaugurate. The whole painting is molded as a surface from many faceted directions, culminating in the mountain and its bare crest. Cézanne's language of paint and

space conveys a directness between his vision and nature. The paint becomes a metaphor, not just for the hue of a thing, but for its substance or being. Land, sky, and mountain intertwine into a unity of nature. Sky and earth vibrate with space swelling into color and nature into space. Painting is a reverence, and to render this as vision it cuts apart color to create space anew. All this becomes the vehicle for a process of meditation.

In "Mont Sainte Victoire seen from Les Lauves", 1902-6 (Philadelphia Museum of Art), the areas of color are again larger and layered. Near the bottom, maroons, blues, and grays streak in thin washes over each other. This mingling of dim shades, like a gully below the houses perched on a plateau, contrasts its moodiness with the brilliant fields and mountain above. Brush strokes in the fields scatter in horizontal and vertical motions across wide stretches. The plains involve land, rocks, and trees through a wild and harvest gold. The painting rises from an interior of mystery and shadow, lacking definition of color and stroke. The houses above stand as outposts at a boundary between brilliance and dark uncertainty. The mountain joins in purples and blues through not a single line but a process of many strokes. The mountain straddles an expanse of land and sky, its ravines sloping with the vertical shower of brush marks also in the sky. Its profile images in part a reclining figure, but it is more an upward meeting of land and sky, higher than in the other paintings, of land purified through

vision so it becomes as sky. Broad veils of turquoise blue, lavender, and olive, both as cloud and sky, sweep up and past the mountain. Underlaid color or canvas freckle through the fabric of paint. Color becomes the poetic element and nature is manifest through it. Vividness of color and strokes brings the mountain as close as the fields. He abandons perspective, the recording of distance, for a jubilation of color that perceives everything alike. Color, not curtailed by perspective or boundary, becomes the metaphor of nature.

The mountain in this painting reveals the way sky acts on land. Sky drapes over the rising land, yet the mountain has more of an ethereal sense than the sky. The foot of the mountain folds and reflects into the plain so its presence fills the space. The paint strokes do not reflect mountain into sky and land as much as they infiltrate and assert the presence of each. Gold and pink and blue shine through each other in an integrity and communion between all parts of nature. Cézanne remakes the picture plane to correspond to nature, not sacrificing his vision of nature to the rubrics of art.

Space makes the poetry, urging upon and between the paint of "Mont Sainte Victoire", c 1904 (Galerie Beyeler, Basel). Dark blues and grays stride along diagonals leading into the painting, surrounded by canvas. Beyond, ochre and olive horizontals suggest a field and tree while vertical brush strokes step in bands into and beneath the mountain. This painting unfurls from these more subdued colors to the openness in pale blues across

the sky. This sky brings space forward in a special immediacy as its brush strokes vault more freely than in other paintings. Blues and greens bleed together, making of the mountain a wall that grows from and escapes the plain. The mountain's profile is sketched by a blue line clasping a bit of space. This mountain imposes a greater distance than the others, floating above its plains. It soars away from hints of land and sky. The mountain comes forth from the blank canvas and shadows blending below it as a process of sight. The horizontal bands give weight to the painting, but their vertical strokes thrust up to the mountain without losing this upward motion. As the mountain takes flight in the space between its open outlines, it evokes a radiance of space more than of color. So the wisping sky and space become a metaphor in this painting for all land and nature through this sense of flight. The painting traces the skeleton of this metaphor with its rare brush strokes through a lyrical passage of space. If in the rock paintings he is modeling shape with color, here he recreates vision and nature. Cézanne comes to see nature as a presence that each paint strokes forges from space. The painting summons not so much growth as integrity of nature by overlapping and prised space.

In each painting of the mountain, Cézanne reveals, not another moment of day but a different attitude toward nature. Nature is so vibrant that every brush stroke and strip of canvas must proclaim this. He paints this spirit through fields, sky, and mountain. The watercolor of ledges demonstrate Cézanne's

skill in interplaying lines and transparent surfaces of color. In the mountain paintings he recreates the very way we see through a composition of space and color. Poetry comes from between the paint, through the interaction of paint strokes with the surrounding vista of space and color.

As in the mountain paintings, paint and space combine as a special tissue in "Jardin de Lauves", c 1906 (Grosse Pointe Shores, Michigan). Yellow strokes knit over green and meet the violet band which divides lawn and meadow as a transition between areas of color. Swatches of canvas and blue, green, violet colors weave throughout the field. The horizon shifts among the brushed edges of colors, remade by tufts of trees and broken horizontal lines. Colors parade across field as standards in a pageant. Cézanne does not see nature as islands of color, but each stroke represents nature again, the colors fit together in a festival of brilliance. Sky and land break into interludes of each other. Blues drip against violets through the sky and the open spaces as a stroke of violet wash in the left field recalls the sky. Pale blues spread across the sky and brush through deeper grays and green. A pink banner of sky flutters over the painting between the stormy grays above and the plain with its sentinels of every color. The sky here adopts something of the mountain's attitude of compromise between color and space, land and air, and freedom from them. This painting takes vision into color and space as the paint strokes frolic across the canvas. Nothing recedes, but the whole painting surface is active.

Cézanne's vision is not fragmented into many colors, but he uses them to attain a fresh sense of natural power. The land is not just a quiltwork of land for he makes a new space from nature.

In two portrait paintings of Vollard and Vallier, Cézanne expresses his attitude toward the human figure, contrasting with the other paintings. The "Portrait of Ambrose Vollard", 1899 (Musée du Petit Palais, Paris) cloaks the figure in shadows and reflection. The figure is seen through an atmosphere of many depths, not with the immediacy of color and brush stroke in the landscapes. The paint is built up in thick layers especially about the arms, although the tips of the knuckles remain bare. Blues, green and lavender, as well as browns, overlay as muted tones in the clothing. Thick bands of brown and gray rim the figure, giving it a definite heaviness and weight. The figure folds into itself with bent arms and crossed legs. The molding, about neck level, and window, painted in layers, introduce a framework to the painting. The window is barred with its grid of ovals and rectangles, so it admits light, but opens only to other building forms. In this way the figure is imprisoned in a duskiess apart from nature. Beard and hair frame the visage, which does glow with light, but does not separate the man from the world he is found in. Only the forehead, hand, and shirt emerge from shadow, and the eyes are shrouded. The painting is critically sensitive to nuance across the face, in clothing, between light and lines of dark color. There is not here the full freedom of color and stroke Cézanne develops in the

landscapes. Space closes about the figure and the colors come together, losing brilliance. Each layer of paint suggests, but does not complete the form with the vigor of the nature paintings, so the portrait is filtered in a subdued light.

"The Gardener Vallier", 1905-6 (National Gallery of Art, Washington) conveys a stronger sense of man in nature than the Vollard portrait. The pose is similar, but turned aside from a frontal view. His hands form an open ring against the dark coat, encircling all about him. Again light falls just upon face and hands, defining these features, but, covered by the cap and beard, his eyes are darkened. A wall tilts behind the figure, at chest level with a screen of melting greens as trees above it. The richness of ochre and earth pigments underlay the wall's browns. A shaft of brighter green passes and bends by his head. Light strikes the knees and coat folds with a gloss of green from a background of deeper blues. The man comes between and among this lushness of light and earth. The paint is thickest about the shoulders and profile yet these boundaries do not delineate the figure, but rather fuse in with the surrounding nature. In this portrait, every stroke does not evoke the world anew, for even all of the paint, in its many layers, does not quite create it and still reflects a sense of calm. Lines and colors dissolve into one another with a richness not found in the Vollard portrait. Cézanne makes of this intensity of color and darkness something clasped in a special blessing that unites the figure with nature. He sees man in a way different from nature; the

figure is enveloped in an aura or history apart from nature. This prevents Cézanne from painting it with the same immediacy of strokes he uses with nature. Cézanne writes of his struggle in the Vallier portraits: "Je vois toujours Vallier, mais je suis silent dans ma réalisation que j'en suis très triste"(Sept. 28, 1906). In this portrait, the figure makes a peace by dwelling with nature and the tones of nature flicker through man. The man has, not so much sight of the detail of nature, but insight, sensing its poetry from within. His understanding of nature evolves from the depth of things, not surfaces, through the overlapping of color. The painting takes the figure from visual space to an inner meditation.

Cézanne paints with an acute awareness of the brush, color, and the painting space that reshapes the way of seeing nature. The brush strokes overlay through one another with free direction in a loose, broad webbing of paint. They layer as many surfaces, transparent through color, that, rather than dissecting or breaking the image apart, convey a new fullness of it, faceted in brilliance. The brush strokes establish the context for color and space in the paintings, for instead of molding color into space, and losing the individual colors and strokes, they remain as separate sensations that converge through the painting in more complex visual ways than by just mixing paint. As the brush stroke becomes independent it forms a matrix, a texture, of color and space; and colors, from the clarity remarked by brush strokes, retain their vitality. Color is remade through each

direction the brush strokes take across paint. Color is internal to the way of seeing not as a static attribute of objects, but by thrusting them into life. Cézanne explores a purity of pigment and paint through his brush strokes and color, freeing them for a more direct approach to nature than conventional methods would permit. He fits these colors and brush strokes together without a contour, a division between parts of the landscape. Vertical and horizontal brush strokes cut across the paintings, so colors enweave each other, one brilliance penetrating another. The space evinced by these brush strokes does not conform to linear perspective. The landscape fills all of the space with such an intensity that distance, recession away from the picture plane represented by converging lines, is not relevant to perception of nature. What is physically near or distant contribute equally to the world that appears inspired by vision so color and brush strokes do not abandon richness through the painting. The vividness of nature to him is not compromised by a preconceived scheme, for nature urges a radical creation in painting.

In summary, then, the examination of these individual paintings shows how Cézanne seeks to attain the textures of nature which are so vivid before him. His paintings are captured from space; if his vision does not permit him "couvrir ma toile"(Oct. 23, 1905), it does compel him to revise space so that canvas and paint supplement each other. He does see nature in a new sense of life, and as colors flutter upon the landscape, he reveals its impulse. Cézanne composes his metaphor by

witnessing a poetry throughout nature and painting each strokes
 ot render it freshly. In a letter he writes "Car si la sensation
 forte de la nature--et certes, je l'ai vive--est la base
 nécessaire de tout conception d'art, et sur laquelle repose la
 grandeur et la beauté de l'oeuvre future, la connaissance des
 moyens d'exprimer notre émotion n'est pas moins essentielle, et
 ne s'acquiert que par une tres longue expérience"(Jan. 25,
 1904). Through this experience, nature and painting combine
 together to forge a metaphor truer to each. In his art he begins
 to perceive and form this more clearly; "Je étudie toujours sur
 nature, et il me semble que je fais de lents progrès"(Sept. 21,
 1906). Cézanne paints with an independence that does not rely
 upon traditional techniques. Nature is a realm of beauty apart
 from such ingrown bias, and Cézanne tries to free his
 representation of it to reveal its space and spiritual sense. In
 one passage he compares the influence of the human inheritance
 with natural models on painting. "Le Louvre est le livre où nous
 apprenons à lire. Nous ne devons cependant pas nous contenter de
 retenir les belles formules de nos illustres devanciers.
 Sortons-en pour étudier la belle nature, tâchons d'en dégager
 l'esprit, cherchons à nous exprimer suivant notre tempérament
 personnel. Le temps et la réflexion d'ailleurs modifient peu à
 peu la vision, et enfin la compréhension nous vient"(1905, p.
 275). The Louvre is an intermediary, but only nature changes the
 artist's perception. Its complexity demands constant and
 dedicated study in order to attain an artistic expression of a

"distinction et force"(May 12, 1904) commensurate with the vision of nature. "Je ne puis arriver a l'intensité qui se développe à mes sens, je n'ai pas cette magnifique richesse de coloration qui anime la nature"(Sept. 8, 1906). Nature dazzles him with a relentless and elusive beauty. Cézanne strives to create in his paintings something of the way he sees nature, that is taken by metaphor into wonder. Sky comes from sky and color from color as he awakens space. Cézanne's sense of color and space liberates the mountain as a grace invades the land below the mountain. Man can only, as in the gardener portrait, feel the pervasive colors of nature and dwell with its blessing. The doorway of the chapel in "Le Cabanon de Jourdan", 1906(Collection Riccardo Jucker, Milan) leads into sky and the painting is haunted with the brilliance of nature. The building is merely a shell that nature inhabits and surrounds with its more powerful colors. In one late letter, Cézanne writes that he sees only ineffable things and wonders--"Je travaille opiniâtement, j'entrevois la Terre promise. Serai-je comme le grand chef des Hébreux ou bien pourrai-je y pénétrer?"(Jan. 9, 1903). The metaphor of vision is about to be born in his art.







Pl. 37. *Mont Sainte-Victoire Seen from Bihémus*. c. 1898–1900. Venuri 766. Oil on canvas, 25½ x 32 in (64.8 x 81.3 cm)
The Baltimore Museum of Art, bequest of Miss Etta and Dr. Claribel Cone



Pl. 128. *Mont Sainte-Victoire Seen from Les Lautes*, 1904–06. Venturi 1529. Oil on canvas, $23\frac{5}{8} \times 28\frac{3}{8}$ in (60 x 72 cm). Kunstmuseum Basel



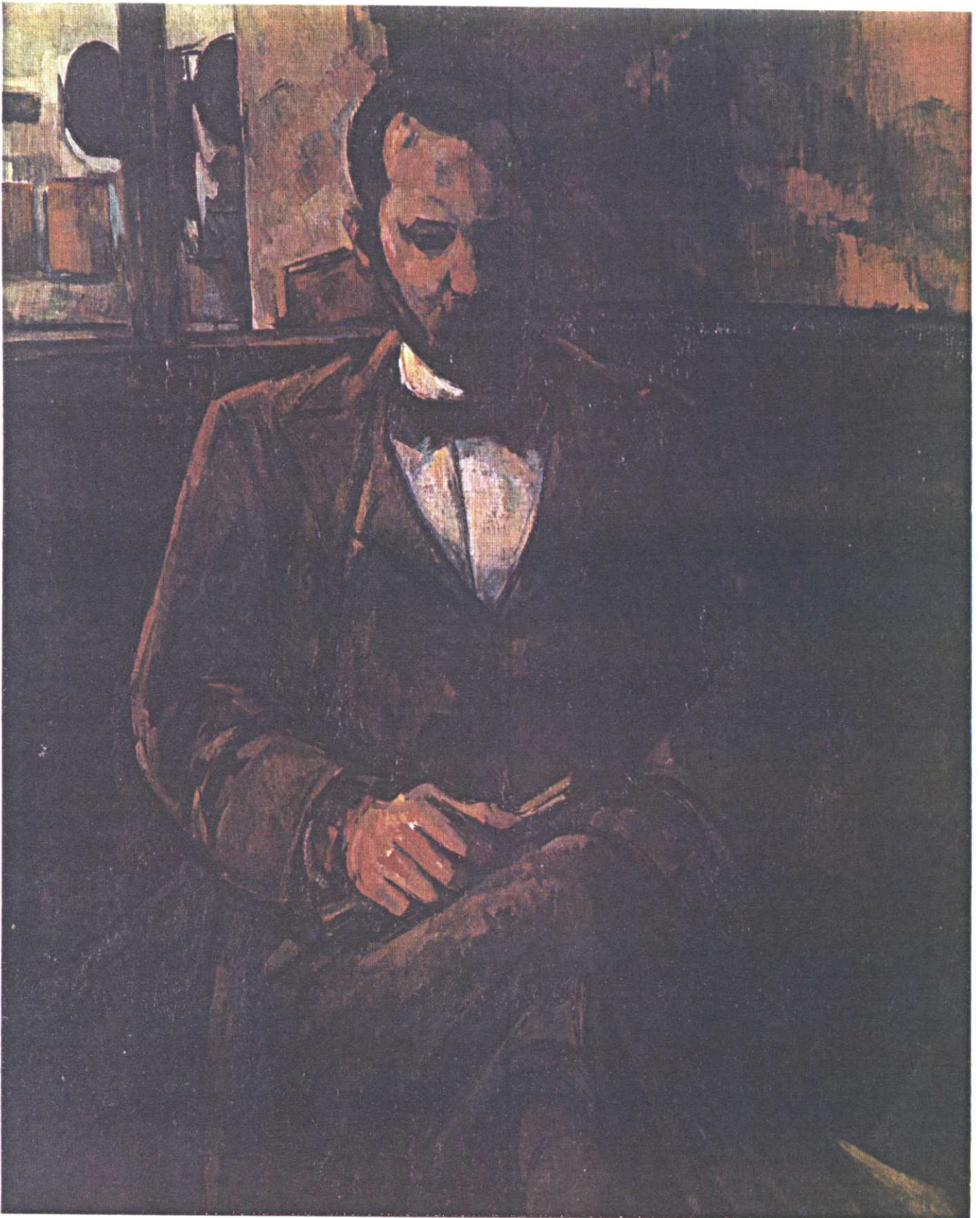
SAINTE-VICTOIRE. 1904-1906



SAINTE-VICTOIRE. 1904-1906



Pl. 79. *Garden of Les Lautes*. c. 1906. Venturi 1610. Oil on canvas, $25\frac{3}{4} \times 32$ in (65.5 x 81.3 cm). The Phillips Collection, Washington



Pl. 4. *Portrait of Ambroise Vollard*. 1899. Venturi 696. Oil on canvas, 39 $\frac{1}{2}$ x 32 in (100.3 x 81.3 cm). Musée du Petit Palais, Paris



Pl. 24. *The Sailor*. 1905-06. Oil on canvas, $42\frac{1}{4} \times 29\frac{3}{8}$ in (107.4 x 74.5 cm)
National Gallery of Art, Washington, gift of Eugene and Agnes Meyer



Monet

Artistic creation, for Monet, responds to the animation of nature by light, and makes metaphor from this by the intermediary of vision. For Monet, the individual brush stroke, the sweep of color areas in space do not comprise the painting as in Cézanne, but instead the paint crisscrosses and weaves colors together in a representation of the almost sudden burst of light upon nature. He exhibits, with Cézanne, the realization of nature through vision and the way of painting corresponds to this vision. For Monet, the process of seeing and the illumination of things by light becomes crucial to the apprehension of nature. This paper will trace the emergence of nature from light in Monet's paintings and begin to comprehend how the artists, Cézanne and Monet, record their process of vision through painting. The seed of metaphor for Monet resides in the individual paintings as they catch a moment of light.

Monet first painted with the artist Boudin in 1856 near his home at Le Havre. Boudin strove to paint light as it crosses nature. He records in his notebooks his sense of an indefinable nature that torments him with its beauty. He witnesses "la brillante lumière qui transforme tout à mes yeux en buissons enchanteurs et je ne puis pas faire sortir cela de ma boue de couleurs"(4). Boudin communicated this awareness to Monet, "ce que pouvait être la peinture"(5), as Monet writes, something of

its potential rather than a definite solution from him. Three years later, Monet went to Paris to see a Salon exhibition, and remained there drawing without his father's consent. After a brief service in Algeria, he returned to Le Havre and painted outdoors again with Boudin and Jongkind. Jongkind's painting enchanted Monet with a spontaneity based more in technique than Boudin(6). Monet left for Paris in 1862 with his father's formal support and studied figure drawing in the studio of Gleyre. Gleyre's vision however, was stifled by his training in classical models as his comment on one of Monet's drawings demonstrates "La nature. . . c'est très beau, comme élément d'étude, mais ça n'offre pas d'intérêt"(7). When Gleyre's school closed two years later, Monet joined his fellow students Sisley and Renoir painting directly from nature and shared studios with Bazille. In 1863, two seascapes were accepted in the formal Salon show and three years later his large painting of Camille was exhibited there. The first independent exhibit of the "Société anonyme des artistes, peintres, sculpteurs, graveurs" in the spring of 1874 included Monet, Cézanne, Renoir and others of a loose association of painters referred to perjoratively by a critic as impressionists, a name borrowed from the title of a painting by Monet. The exhibit was publically a failure but it served to unite these young artists in an endeavor. Throughout this time, Monet struggled impoverished, selling only occasional paintings and often relying upon friends for support. One letter is typical of this despair "me voilà dans une cruelle situation. .

. pas de qu^oi payer le déméngeur, pas un sou!"(8) A much earlier letter relating Monet's rejection by the Salon suggests how this discouragement, combined with the poverty, inhibits his work+ "mon état est presque désespéré, et le pire est que je ne puis même plus travailler"(9). After his first wife's death, Monet lived with Alice Hoschedé, finally settling in Giverny in 1883(10). He made occasional voyages beyond there to Norway, Rouen, Paris, to paint "le difficile", shiftings of light, weather, and land unfamiliar to him.(11) In Giverny, a land divided by arms of the Seine that lifts in gentle hills which his stepson describes as "tantôt mauves, tantôt blues, souvent aussi enveloppés de brune"(12), Monet's work and vision began to participate with nature in a rare way. He grew and nourished a bewitched realm of blossoms and water there, a garden, deflecting a stream so it collected in pools and basins on his property, where he planted the waterlilies.(13) The garden became as profuse in color and texture as the paintings, as it was planted with all varieties of flowers and trees. This was part of the fulfillments of Monet's vision of nature; there he had gathered blooming shoots that live by the true light of nature. His stepson write "On peut donc conclure que Monet fut le créateur-- j'allais dire le peinture--de son jardin et que Félix(the gardener) en fut le parfait exécutant!"(14). Something of Monet's attachment to the garden and his attitude toward all nature is evident in one late statement: "Il y a eu un cyclone hier. Deux arbres de mon jardin sont morts. Vous entendez:

deux arbres! Eh bien, voilà! Ce n'est plus mon jardin!"(15)

Each moment or day nature, the garden, is new again, here in a literal and expressive phrase is his perception of the integrity and intertwining of things. Monet displayed the waterlily paintings in 1900 and again in 1909(16). Afterwards he preferred to keep the paintings in his own studio, subject to his criticism and recorections. "C'est fini. Je suis aveugle. Je n'ai plus de raison de vivre. . . tant que je serai vivant, je n'accepterai pas que ces panneaux sortent d'ici. . . je redoubte mes critiques plus que celles des yeux les plus qualifiés". His eyesight began to fail until he perceived colors falsely, and in 1923 he had a cataract operation, "On me ferait de nouveaux yeux, disait-il, et que deviendrait Monet sans ses yeux?"(17) Vision was essential and integral to the process of his painting; through it the light of nature evoked constantly new worlds and entered his art. The paintings reveal his struggle of vision with art to portray nature, even in its too swift changes "tout pousse et verdi. Moi qui rêvais de peindre la Creuse comme nous l'avions vue!(18)

The paintings from the Boston Museum of Fine Arts collection, displayed as "Monet Unveiled" provide the context for this study of how Monet's vision is portrayed through painting. The paintings are arranged in pairs, each member of the pair expresses a different attitude of light falling upon the subject. Together, the two suggest how nature is changed and rendered anew by vision, that each shift of light evokes nature through another

metaphor. The particular interaction of light and nature will emerge as the basis for Monet's metaphorical creation. The paintings, in the pairs cited below, relieve each other as aspects of a single vision.

The succession of paintings selected here moves from ones where landscape is reconceived through a tissue of light to those where water increasingly participates in the play of light and nature. The first paintings of haystacks set the straw as filaments of light. One painting blazes with paint so the brilliance of colors acts as suns and light while in another paint layers color with more subdued richness. Through the paintings, the haystacks make visible the sense of light that infiltrates land and sky. A pair depicting the sheen of the Rouen Cathedral at dawn and sunset suggest how the same edifice can be transformed by the way of seeing it, by conditions that influence vision rather than the object. Moment by moment, nature flickers with wondrous hues, and vision records this. The paintings of bridges begin to combine light and water until land, the blossom of nature is another illusion worked by light. Water and air are counterparts. In the paintings one acts as the softer tinge of the other and painting recognizes how light accomplishes this. Two paintings of the river banks convey the morning coming into pearl tones, the still of light. Colors filter delicately in the paintings, through layers of paint strokes that do not remain independently placed but rather touch and blend. In observing these paintings, the textures of paint

color emerge into focus; the painting, as nature, is composed from many colors and impressions and it is the task of vision to synthesize this into beauty. The waterlily paintings begin to do this, for there light casts nature into metaphor. Water and sky and blossom evolve into vision through the paint.

The discussion of paired paintings commences with the haystack paintings where paintstrokes give a texture of straw. In "Haystack at Sunrise", 1891, reds and orange streak through the haystack base while its shadow is a composite of color harmony and complementaries; violets, greens and blue with yellow green sprays. The haystack's peak twines greens and blues and is edged against sky and fields with scarlet. Paint thicknesses braid colors together as a knot of ignited hair at the haystack's top. The boundary about haystack and shadow is crusted with pinks veined in crimson, greens, and golds. Thinner pinks and light blues angle through a meadow behind the haystack meet a strip of golds accented by blue, the faint images of houses and trees dispersed in the ruddy glare. The brush strokes in the haystack and fields remain as individual applications of paint producing a haylike texture. The sky is stripped in pale pink, blue, and yellow, blended by the even textured strokes. Both mountain range and sky are lost in the haystack's aura of gold at the right. The whole painting, underlaid with pink and lavender is set ablaze by the golds and oranges until all the countryside rages with color. Color and light are unbound and resewn through the paint strokes so texture and paint become part

of the painting and statement. All the color and land is the sunset which emanates from within the haystack as a shield of flame forming distance, or space from light. The strength of colors makes permanent this moment when sunset engulfs everything.

Another painting of the "Haystack in Winter", 1891, invokes a stillness of light in air and snow. Yellow and pink seep gently across the snowfield brushed in blue and white strokes. It is not merely snow, for the gaze of color upon it wrinkles with the softened hues of hay, mountains, and sky about it. From light blues to greens, the haystack shadow flickers over the snow and into the pink. The haystack's base entwinds greens and pink oranges; its cone is thatched in deep violets. It becomes a rich knit of gold thread through purple with light twining down its left side through the peach tints of sun. Here the hay hut is below the ridge horizon, not silouetted in the sky as in the previous painting. The bands of mountain and sky enclose the space, then, with more subdued colors. Both sky and mountains are painted with a consistent texture; the sky from white grays, and the mountains of light and clear blues. In them, as throughout the painting, colors interchange and shadow each other, not fading dimmer in shadow or distance, but becoming more lucent. Trees and houses bound field and ridges in pink and lavender, sending their light into the blue wall of hills. In this painting, the brush strokes are not distinct, but mat together a texture of paint and bound space. The depth of

texture and color in the haystack reflects and imprints the surrounding air and mountains, filling them with light. As the light glances off the haystack and across snow and mountains, a calm wonder enters the space.

The paint strokes in the haystack paintings express how the light acts through the landscape. Colors leap through the sunset painting in rapid strokes and in the winter scene paint merges with clarity of color. The color and texture nested in the haystacks radiates a glow through fields and sky. The haystacks in this way becomes the source for the sense of light, as brighter colors flare in the sunset painting and slip through straw in the other. Their network of color filtering to the land and sky beyond serves as a visible metaphor for the nature aroused by light.

In the "Rouen Cathedral at Dawn", 1894, many crossing layers of paint make a stonelike surface of the paint itself. It is brushed across gaps in its heavy weave so color at the canvas level shows from beneath. This gives a transparency to the oil painting by employing the texture and opaqueness of the paint to work a depth and floating of colors upon color. Boundaries and even brush strokes are lost and remade from this falling of light through paint. The filigree of overpainted colors converges at a distance to the image of columns and towers. There is no shadow or dimness about the columns from this paint texture for instead it casts a new space for vivid color. Columns emerge from the arched windows at the painting's bottom as colors stranded

through each other, not as the specific delineations of columns or windows. The cathedral's right facade mounts through deep and clear blues touched with lavender and rose, and the high pinnacles admit the sky's openness to their weave. These columns shift from highlights of darker blue to the pinks and softer blues spoken by the dawn. The sky, with a texture smoother than the cathedral, veils blues over pink. The painting itself then is a process of dawns as deep twilight blues feather onto pale columns and texture. It loses definiteness as the echo of sun in haze tinges everything with early morning. The shimmer of things can not be caught in definiteness. Space issues from the transitions between colors as they inmix in light. Dawn comes into form across this and color and texture free that form from sculptural weight to set it upon the air. Monet seeks with precision not the cathedral structure, but how it exemplifies the nature arising from it. Streaks of deeper blue and white accent then, not windows and columns but a vision wrought through them in light. Monet discloses the transitory glow rather than the static effect of the tower.

A painting of the "Rouen Cathedral at Sunset", 1894, complements the dawn painting as the two haystack paintings reflect each other. The sky is here painted smoothly with a blue almost violent and direct from nature. This blue streaks through the painting. The painted surface of the cathedral is again a rough caking of colors together without boundaries by strokes. The paint itself is active as blue, green, and gold describe

parts of the tower and blend against each other. The lower turrets and building face is patterned in lavender and blues with gold and pink rims. The white columns are actually molded from blues, gold, and pinks as paint comes upon paint in rapid overlay until they seem bleached in light. The rows of pillars sparkle in the light rather than diffuse through it as in the dawn painting. Golds, blues, and lavender are caught within the grooves of the cathedral as myriad suns, ensnared in their light. Golds pass from and into blues and violets in the four vertical divisions between pillars, each making the sunset again. Colors, subtle and blued golds, inmesh in the upper, or rose window to lend a special depth. In the higher tower, color is more diffuse, paling in blues and whites among strips of white, gold, blue. The tips of things receive the light as it grazes over rows or columns of color. The cathedral's sculpture evolves in a fresh way from color, as nature does from light in a relationship worked by metaphor. Monet does not employ layers of paint in order to evoke a visual depth but rather the image of the cathedral as it rises through the touch of nature. The top shred of sky blue is spiked with light catching peaks that silhouette rather than fade to the sky. Below, suns move across the cathedral by golds. Color, that was subtle in the other painting, here is possessed by brilliance.

The time of light's glory breaking into a glow upon a thing, as embodied in paint colors and texture, becomes part of Monet's metaphor for nature. He sees nature through it, illumined by

this special sense that magnifies color. In dawn and sunset nature takes on a fresh vision; each painting is a moment full of that glow which tints it with color. He strives to render what is passing, yet in his sense permanent. "La nature change si vite en ce moment, c'est navrant. Avec cela, je n'ose toucher aux cathedrals"(19). The world is recreated astir with this light at each moment and he paints to yield it weaving together. For this process, colors work among each other through the texture of their application. He remains intimate with the paint, shaping this vision from its texture and color. Paint interlaces with paint to fill the space and the glow rides upon it.

Flecks of yellow and gold race across the river in a painting of "Charing Cross Bridge", 1900. The bridge's blues and greens, brushed in broad strokes, angle through this glimmer. Three sets of beams, barred in green and lavender, support its stretch. Water glints pale yellow from between the struts except the right ones which overlap from the perspective of this view. The bridge's underside is traced with white as its shadowed image is illumined from beneath. This band of blueness reflects aquamarine into the water with paint that ripples out from the reflection band. Paler blues and lavender swallow the sky, and other shores are not defined with the wide paint strokes of the bridge and violet shorebank. The brush strokes of the water are horizontal, but the colors slant, crossing levels of yellow and pinker blues and scatter off from the bridge's parallels. In the

sky, strokes sweep upward, netting pale blues over apricots and pink as a fabric subtle in colors. Greens work among blues and lavender in the parliment houses as they are wrapped in the colors of filmy light. Pale blues brush into and under sky and water at the horizon, assimilating the two. The horizontals of bridge, reflection, and shores and the vertical towers align the painting in the atmosphere of mixing light and water. The slight perspective of the bridge's beams does not establish the sense of space for Monet, but rather orients the mist scarving about it. The painting dissolves into yellow blue at the borders and yellow and pink strain the distance beyond the bridge, in the left front. Brush strokes cloud colors together, urging a distance, not of banks and towers, but diffuse in space and light. Thick yellow paint flakes across the water in the center, where the light hits it. A sheaf of rosy nuance tilts through the painting and the sense of light evolves from this. This light filtering within, and finally at the water, upon the painting surface, becomes the presence of nature. The painting reveals how the light sweeps through a space of color, from pink hanging about the pinnacles, pale among fogs, to the gold moving water. From this there is a direct sense of impression, of light swooping through atmospheres that divest the bridge and buildings of form. Vision records a whirl of it, lost from definite substance to a different sense of texture and light through a veil falling upon land and water.

Texture and color together evince an intimacy and vitality

of paint in "Water Garden and Japanese Footbridge", 1900. At the bottom corner, colors spear through colors from oranges to yellows and bluer greens, converging in vibrance. White green brushes across the full vermilion and rare streaks of viridian greens of a bush above this. The white strokes filamenting through it contrast with the long bladed strokes in the lower growth as light grazes upon the bush. Green strips through red in the willow tree while yellow and yellow greens brush in thick texture and divide the tree as two braids. The willow is stranded in color with paint textured through paint. The foliage to the right is mottled with brown and ochres in the higher reach that deepen as emeralds and blue grays lower, while pink and yellow dab across the trees. This part is painted loosely, with crossing stroke directions, applied with uneven thickness. The bridge with white falling upon its blue greens and violet, spans this garden of color. Its three struts and arches make an open weave about the color, introducing directed lines. The bridge's texture, roughly figured in striped paints, passes through the surrounding violence of stroke and color. The water beneath reflects the willow with thick yellow strokes through its reds. Waterlilies sparkle among the opaque crimson water with textured brushes of white and coral.

The glow, as of a lavender moment filling the other paintings, here intensifies in crimson and maroons, and these reds undercoat the canvas. Colors strike into brilliance and form space from such bleeding pigments. The very vividness set

into them lends a sombreness to the painting, as both dark and light, both white willow and water are unrelieved in intensity. Light seeps through the crossing hues, by the way paint is applied. The space in this painting is worked from this prowess of color against color as it images a verdant frenzy. The paint streaks through a glory of nature that emerges from the painting in a tempest of vision brought by the strong overbrushing colors. The painting enacts a fresh sense of sight that catches nature as it weaves together from many impressions and the various attitudes of light. Color, as the happening of light upon nature, announces this.

The two bridge paintings portray contrasting attitudes of light as it shifts through nature. In the first painting, light disperses color into pale tones, each mirrored in the soft brush stroke and tinting of the others. The bridge floats through sky and water, supported by its reflections and passing into misted colors. The other bridge arcs through a bounty of colors that vie for wild brightness. Neither bridge connects land to land, for both are taken in the action of crossing, spanning. They participate in the surrounding reflections of color on color so that form is lost to the special glow of color. The bridges then become part of Monet's metaphor for the process of seeing. Vision occurs at the moment of passing, in one instant when light, as described by color, siezes nature with a sudden glow.

In two morning paintings of the Seine, Monet presents a calm of light upon water and sky. Trees border the opposite banks

with blues and lavenders in "Branch of the Seine near Giverny I", 1896. Blue greens and violets in the water blend through broader strokes than the nearer trees which are dabbed lightly, each brush stroke bringing a new color. Dark green strokes come loosely downward in the higher tree and violet branches arch through this falling of color. Lavender and violet, as for sky, paints over this foliage, so color responds between trees and sky. The tree's leafy strokes are interspersed with deeper violets and blues until a violet hanging of light in air filters through the tree. Its foliage drops, comprising a grace between sky and water and containing something of each. Strokes of yellow greens twist through the lower bush in patterns which sway to the water. More intense greens and violets lace through the bush's reflections. Brush strokes overlap broadly and colors become slightly deeper in the painting's reflections, while the brush strokes above intertouch colors. Blues and violets merge lilac in the sky and reflect with enriched hue into the river. Whitened and violet bands indicate wavelets of water and, by making another reflection between water and sky, enhance the stillness. The upper sky's blues upcast the trees to a pearly transparency and the water's denser colors shadow this. A pale turn of radiance moves through the painting's sunlit wash of blued pinks. Light fills this space with a sense of the glow Monet perceives as settled in stillness upon nature. Monet paints a fleet sense of nature, but he makes the painting complete in this glow.

"Branch of the Seine near Giverny II", 1897, becomes a pause of things not quite formed, somewhat as the dawn cathedral painting. Brush strokes mist colors into each other in the upper trees. Blues and whiter greens paint over the dark greens of the foliage interior by a manner of brush stroke that fluidly brings color to color rather than texture to texture. Red violets beneath these silken greens give a softness of depth to colors. Reflections and trees bleed through this layering of color in a single sense of depth. Dark greens and blue violets arch together in the higher tree and set off the paler turquoise and white shrub below. This bush overhangs the river and gathers folds of lavender and greens at its edges against the water and higher tree disguises the bush in wispieness. As in the other painting, the tall tree droops over the river, but here the tree is mantled densely in colors. Only rare touches of the sky's lavender show through it, enough to suggest the tree bending on itself to the fluff of its lowest boughs. The strong reds and greens of the main tree support the loft of lighter color. The trees on the opposite bank are shaded in maroons and lavenders that roll into a glimmer of white and blue greens. The paint here and in the sky has an opaqueness from its thick whiteness and the smooth way it blends. The mist from these colors, seems to close upon land and water taking them into a separate silver space. The sky and its reflection on the water are orchid touched with blues. Lines of its pinkness stroke across the stream, catching the calm of the water plane and crafting a sheen

on the surface. The brush strokes of water reflections streak horizontally over the orchids, preserving the stillness of water and sky. Blue, green, and violet awaken together in this painting as the lilac glow comes between them. There are no lines or boundaries at the painting surface, only the fluid network and exchange of colors which adopt depth and lightness at a distance. The subtlety of these colors shrouds the painting in a sense, not of definiteness, but of a moment not yet made. The painting is suffused with a premonition of light just beginning to arrive from among the trees and upon the water. A sensitive glow steals through this with the peace of waiting. In this painting, light is still wedded with shadow and vision traces its coming forth.

The two paintings reveal the river in moments of silence upon sky and stream, and the process of flow leaking across it. The brush strokes filter color, not texture of paint, so stretches of color flow together. Reflections and sky embrace each other in the single flush of lavender or orchid. Images of trees hover over the water they touch and mate color with. The vision of nature emerges from within this delicacy and this process of its emergence becomes the metaphor for nature. Nature is seen, not as a definite physical presence, but as a sheen wrought by light, represented by overtinting colors. This new sense, or metaphor, of nature arises from the light that enters vision in its action as it does so.

Paint is textured in the two waterlilies paintings so deeper colors show through from beneath, speckling the surface with

denser reflections as in the cathedral paintings, but without the same pasty thickness. In the water of "Water Lilies I", 1905, paint forms rills to the violets and browns of another level. Viridian greens curve through the lily pads in the left front to suggest the leaves from a mass of yellows and greens, edged with maroon. Strokes of white, pinks, and red blues fold together in each waterlily and the whiter tips accent the daintiness of their opening into light. Greens loosely coat the pads, while the flowers are more petaled in stroke and color. Brown strokes underline the next group of pads and set them upon the water with a richness that rims them into the water's blued lavenders. The water joining the two regions of pads is painted with deep violets showing from beneath a lightness of browns. Pale green layers underlying the water lace the separate pads together. The green stroked pads dapple the water. The lowest of the pads beyond stretches down almost to meet the others as extensions of a land of lilies. White greens strung about with darker strokes somewhat define the leaves here and still interplay leaf with leaf and leaf with water. Magneta dabs into swift stroked white for the lilies as the coming of light into flower from leaves and water. Above, distinctions of leaf and water are lost and the paint weaves purely. Islands of flowers float upon strips of dashed and bright greens or are edged with violet. Single strokes of yellow, white, or pinks spark through more intense greens and violets as flowerheads. Monet paints the water as it reflects and dissolves in the shadows of trees. Blues, greens, and browns are cast into texture through the half lights of

mauve. Layers and surfaces of leaves and water, of sky and shadow knit together through the paint. Pink and white flutter upon the twining of color and texture in the water. The water becomes a mauve surface teased into color where flowers span shadows. Light blooms into the painting, softly across surfaces of leaves upon water, of shadows and flowers, caught in color. The dim subtlety of green in lavender, of darker blues and violet in the upper corners strays out into light, melting through colors of earliness.

Colors mix and texture through paint application in the foreground lily pads of "Water Lilies II", 1907. Turquoise brushes finely into ochres and yellow greens over the water's layers of lavender and pale greens. The waterlilies here are twists of color, white and violet spotted with crimson and orange. This cluster seems, from the paint textures, an uncovering of leaves and water through different lights. The next float of pads is slightly more defined as dark green strokes loosely enclose both greens and pale violets, water and leaf, in their circles. Rims of red violet and blues to the pads snatch sky and blend with the water as wells of colors within colors take the leaves into both water and sky. The flowers brushed with scarlet and white are still very much streaks of paint into paint. Sky, leaf, and water fill all the painting as greens layer through whites and not by distinguishing regions. Each stroked lily is merely a single petal to a grand flower unfolding into light. Paints fall upon paints so each leaf is touched with white, crimson, or violet as a flower. One bouquet floating at

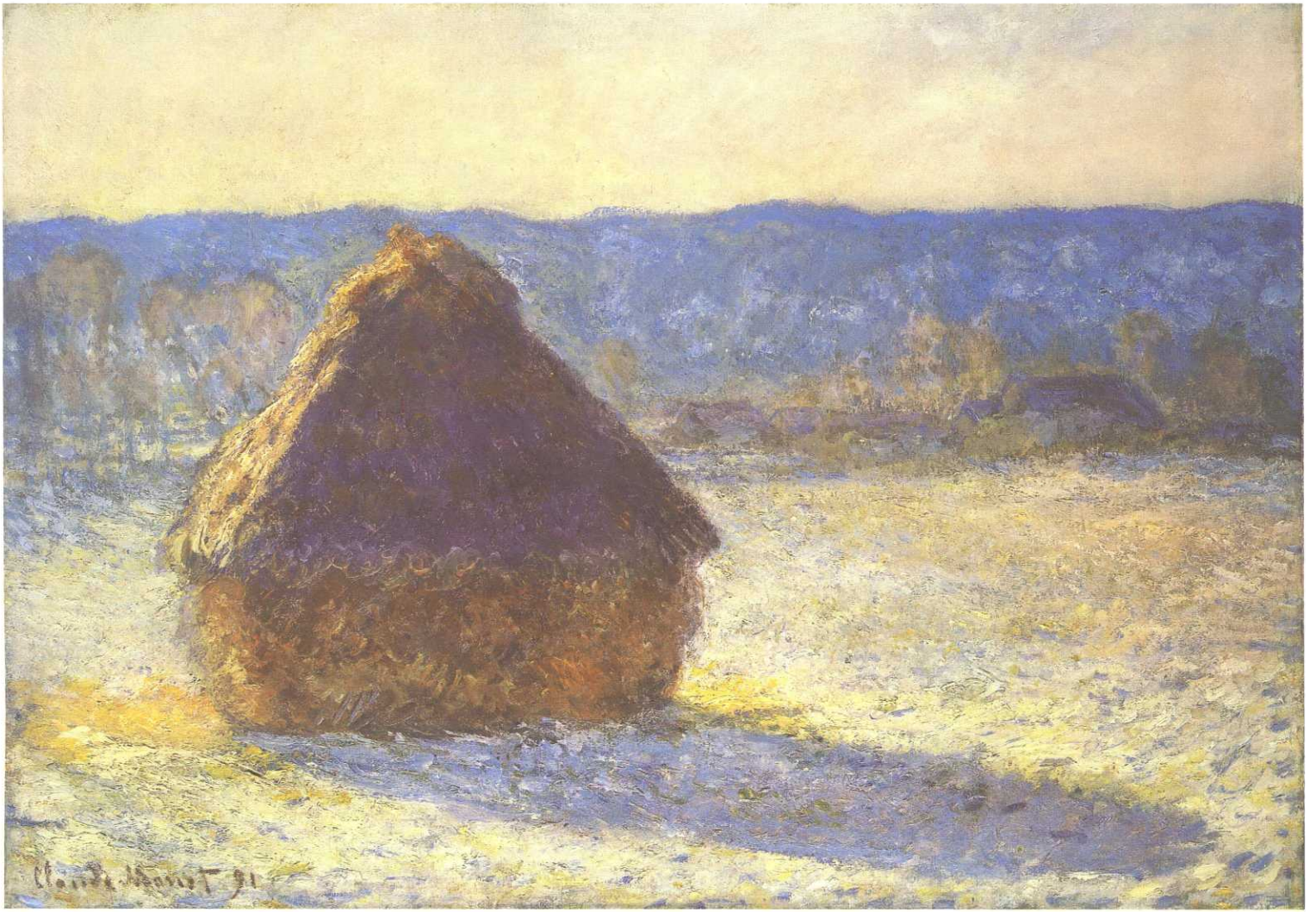
the right is studded with intense blues, crimson, greens. In the furthest part of the painting, using a distance defined, not by perspective, but by color, the leaves become sky blue and the water green. The water filters shadows of trees through tawny green stretches into brighter yellows, glazed with blue and tapering to lavender from among the lilies. Monet perceives and paints lily pads basking in the sunlight and flowers stemmed from a lavender sky. The lily pads gather as clouds in a sweeping air in a fresh metaphor of sky and water, of gleam and blossom. The translucency of things through colors emerges from the painting and from the loosely brushed further pads instead of a space fitted by perspective for distance. Light sets all aglow with the metaphor of sky and water that the paint conveys. Thus this painting opens into brightness from levels of color and makes this metaphor of a new nature, enlocked in light, through vision. Nature is not statically existent, for it is ever reborn by light and reinterpreted by the artist's vision.

Blossoms ride on a glassy calm in the other painting. The light leaks over a fragrance and intimacy of orchid colors, shattering among petals. The later painting is streamered by a fineness of light that evokes clarity and clouds, skies and flowers from color. The vision that brings these things together by color strives to make visible the ascent into glow, the environment transformed by radiance. Skies melt across other skies and colors across colors, making the glow from within surfaces of paint. Monet paints surfaces of nature as they accept the glaze of light. Nature is transfigured by this way of

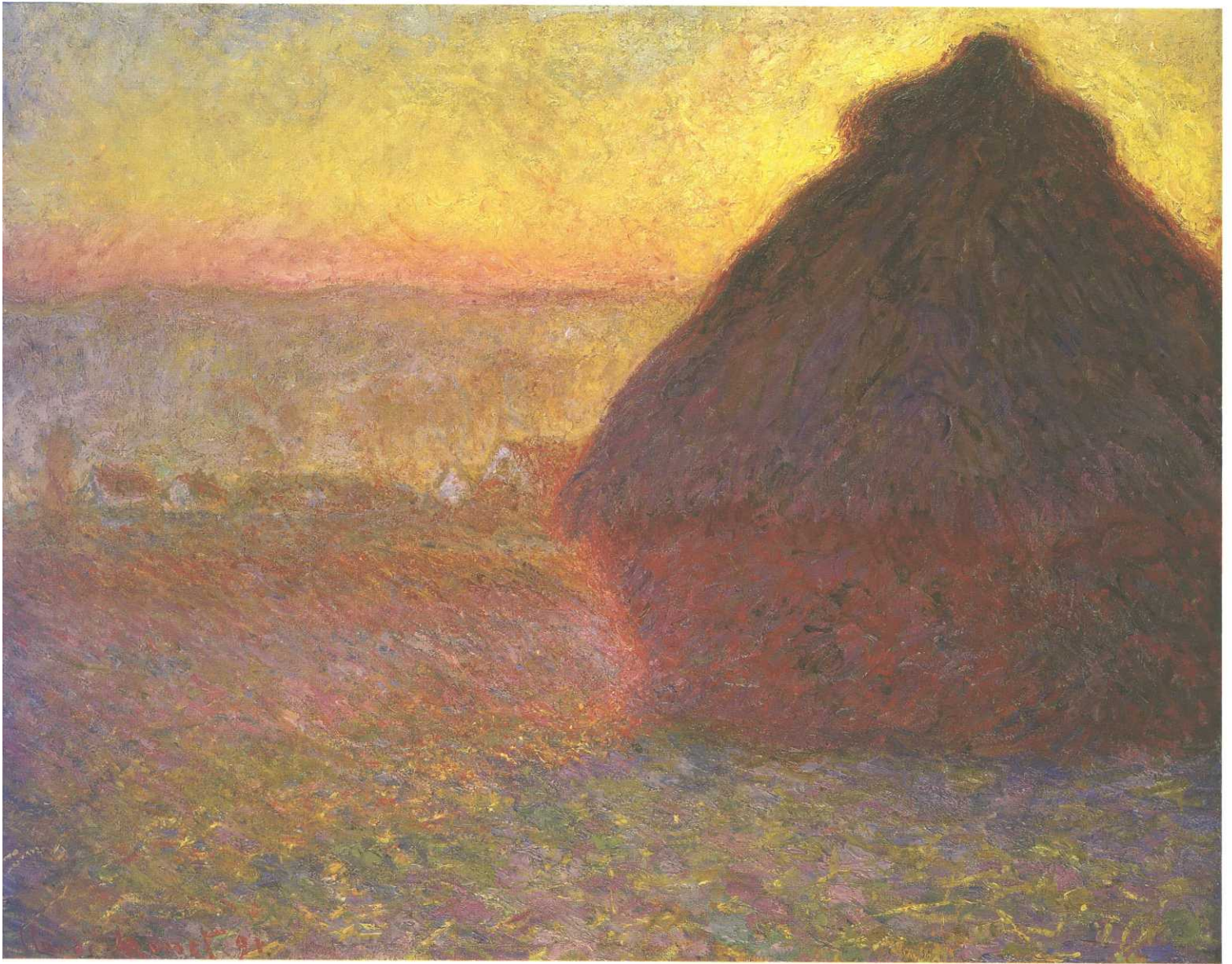
seeing things lustrous; vision and light, art and nature intertwine in this metaphor.

The dualism of subject, of light and moment in the exhibited paintings reveals the sense in which Monet sees nature new each time. Light awakens nature and vision incites this waking. Monet represents this through the special glow underlying the paintings; through it the light comes forth and infiltrates the paintings. Vision is woven through textures and overlapping colors, making from the paint a metaphor between sky and land. Water, reflecting both, becomes studded with the blossom of both. Through its tissue of color instilled by light, Monet may glimpse with the painting, a moment of the light's winding in nature, but the paint works a glow more permanent or intrinsic to light and nature. He brushes color over color to render through paint, a fresh sort of substance. "L'on peut faire plus lumineux et mieux avec une toute autre palette. Le grand point est de savoir se servir des couleurs dont le choix n'est en somme qu'affair d'habitude. Bref je me sers de blanc d'argent, jaune cadmium, vermillon, garance foncée, bleu de cobalt, vert émeraude, et c'est tout"(20). Not the specific colors, but the tapestry they produce for light engenders the painting. "La hantise, al joie, le tourment de mes journées"(21) lies in the matching of these colors with the nature they remake. He paints nature as it emerges into light before it can be defined. Monet writes: "Les autres peintres veulent peindre un pont, un maison, un bateaux. Ils peignent le pont, la maison, le bateau et ils ont fini. . . . Je veux peindre l'air dans lequel se trouve le pont, la maison,

le bateau. La beauté de l'air où ils sont et ce n'est rien autre que l'impossible. Oh si je pouvais me contenter du possible!"(22) His vision transforms nature so it can no longer be described by conventional techniques, and only the impossible remains before him. Vision is remade by the instance of light across nature and the paintings become metaphors for the process of its enchantment. "Quand on est dans le plan des apparences concordantes, on ne peut pas être bien loin de la réalité, ou tout au moins de ce que nous en pouvons connaître. Je n'ai fait que regarder ce que m'a montré l'univers, pour en rendre témoignage par mon pinceau"(23). Light animates nature with a web of color that vision casts into paint. Each moment comes new upon nature and revels in the light. Monet realizes in his paintings a metaphor for the way of seeing this happen.



30
Haystack in Winter



29
Haystack at Sunset

31

Rouen Cathedral at Dawn

Signed and dated 1894

Oil on canvas

41¼ x 29 in. (106 x 73.7 cm.)

Tompkins Collection. Purchased, Arthur Gordon

Tompkins Residuary Fund

24.6

32

Rouen Cathedral at Sunset

Signed and dated 1894

Oil on canvas

39½ x 25¼ in. (100.3 x 65.5 cm.)

Juliana Cheney Edwards Collection.

Bequest of Hannah Marcy Edwards in memory

of her mother

39.671

(see following pages)

Much of the significance in Monet's early work lies in the fundamental importance he attached to painting everyday reality, to demonstrating the range of visual variety and excitement in common landscape views to which few people gave much notice. When, in contrast, he turned his attention to a major medieval monument (which his entire audience would have prided themselves on knowing well), the west façade of Rouen Cathedral, Monet made his own vision the critical issue, rather than any significance or lack of it in the landscape itself. Monet was declaring that no one had really seen the cathedral façade until one had seen it at least twenty times, in different lights at different seasons — as Monet himself had seen it.

The risk Monet was taking was great, even if seldom noticed. A national treasure, Rouen was repeatedly reproduced in prints, paintings, and, by 1892, even in photographs. In such a restricted view of the church, from which Monet consciously removed all identifiably religious symbols, notably the cross at the apex of the central tower, the potential for becoming trivial was always in front of him. It is a tribute to his consummate skill as a colorist, his unshakable faith in the importance of his method of painting in series, and also the majesty of Rouen Cathedral, that the exhibition of twenty cathedral paintings in 1895 was his greatest critical and popular success.

Both *Rouen Cathedral at Dawn* and *Rouen Cathedral at Sunset* show similar views of the West Portal and the Tour St. Romain, painted from the second-floor window of a building across the square. Monet's viewpoint shifts only slightly between the two paintings, including buildings at the base of the Tour St. Romain in the *Cathedral at Dawn*, and part of the Tour de Beurre in the *Sunset* painting. The fundamental change between the paintings is the sunlight, touching only the upper portion of the Tour St. Romain as the sun rises over the eastern end of the Cathedral, and illuminating the full façade as it sets. But with the change in the direction of the sunlight, the entire atmosphere seems to change. With the full light of the setting sun, the very air becomes charged with light as the thousands of stone details break up the sunlight and reflect it in all directions; at dawn, the same details seem to hug the shadows, swallowing what little light escapes around the tower, making the façade much darker but unexpectedly more legible. Monet called this shimmer of light the *enveloppe*, and repeatedly complained of the great difficulty in capturing the appearance of the cathedral as the *enveloppe* changed with the light or the season.

As Monet struggled with the fleeting effects, working and reworking the picture surface, the paint took on the rough texture of weathered stone, so that the paintings begin to collect and reflect light much as the cathedral façade.

A.M.

In Rouen Cathedral at Dawn Monet was seeking to capture the coruscation of light as it fell on the faceted surfaces of the stone. There are very few continuing strokes marked by the brush bristles. Only in the rose window can we identify the use of a small loaded brush. The thick, heavily bodied paint seems to have been applied by stabbing it on with a stiff brush. It has been suggested that some of the heavier paint was loaded on with a palette knife, but this seems unlikely, as we can find no trace of such a tool. The unusual texture of the paint was developed for a specific optical effect.



31
Rouen Cathedral at Dawn



32
Rouen Cathedral at Sunset



33

Branch of the Seine near Giverny I

Signed and dated 1896

Oil on canvas

28 $\frac{7}{8}$ x 36 $\frac{3}{8}$ in. (73.5 x 92.4 cm.)

Juliana Cheney Edwards Collection. Bequest of Grace M. Edwards in memory of her mother 39.655

34

Branch of the Seine near Giverny II

Signed and dated 1897

Oil on canvas

32 $\frac{1}{8}$ x 36 $\frac{3}{8}$ in. (81.6 x 92.4 cm.)

Gift of Mrs. Walter Scott Fitz 11.1261

With the Mornings on the Seine series, painted during the summers of 1896 and 1897, the river again became Monet's visual stimulus. From a position along a tributary of the Seine near his home at Giverny, Monet observed subtle and minute changes of color and tone in the dawning light. The view is nearly constant within the series, the river overhung with trees that recede in the distance, allowing trees, sky, and water to converge. Variations occur only as the morning light intensifies over the quiet river shrouded in mist, which is conveyed by Monet's smoother application of paint, without broken strokes or impasto, and by a pervasive close range of blues and purples.

In the 1896 version the sun has risen high enough to dissipate some of the haze. The gray-green trees in the foreground stand apart in color and delineation from the still shadowy, flattened blue-green trees along the low horizon. Light has just

emerged in the 1897 version, not yet disturbing the bluish-purple tonality. Brushstrokes are unobtrusive and forms simplified into silhouettes; only the elevated horizon line differentiates the reflection from its source. Foliage and sky and their counterparts on the surface of the water are mirror images of each other, balanced within a nearly square format.

Monet's earlier paintings of the Seine portrayed an active river, flowing past towns and supporting boats. Later, in this series, the river is becalmed and mist-laden, anticipating Monet's preoccupation with atmosphere over the Thames (no. 36) and the canals of Venice (no. 39). Reflections on water are more closely examined in the Water Lilies series (nos. 37 and 38).

L.H.G.



The diffuse misty light brings the values into a narrow range. The hues are also limited to cool greens and lavender-blues and the pale mauve of the sky and its reflection in the water, with a few touches of darker green or purple for the shadows.

Within these limitations the colors shift. Each stroke is soft-edged, blending into its neighbors, except for the finest threads of white highlights in the water, which serve to establish the plane of this reflecting sheet.



35
Water Garden and Japanese Footbridge

Signed and dated 1900

Oil on canvas

35 x 36¼ in. (89 x 92 cm.)

Given in memory of Governor Alvan T. Fuller by
The Fuller Foundation

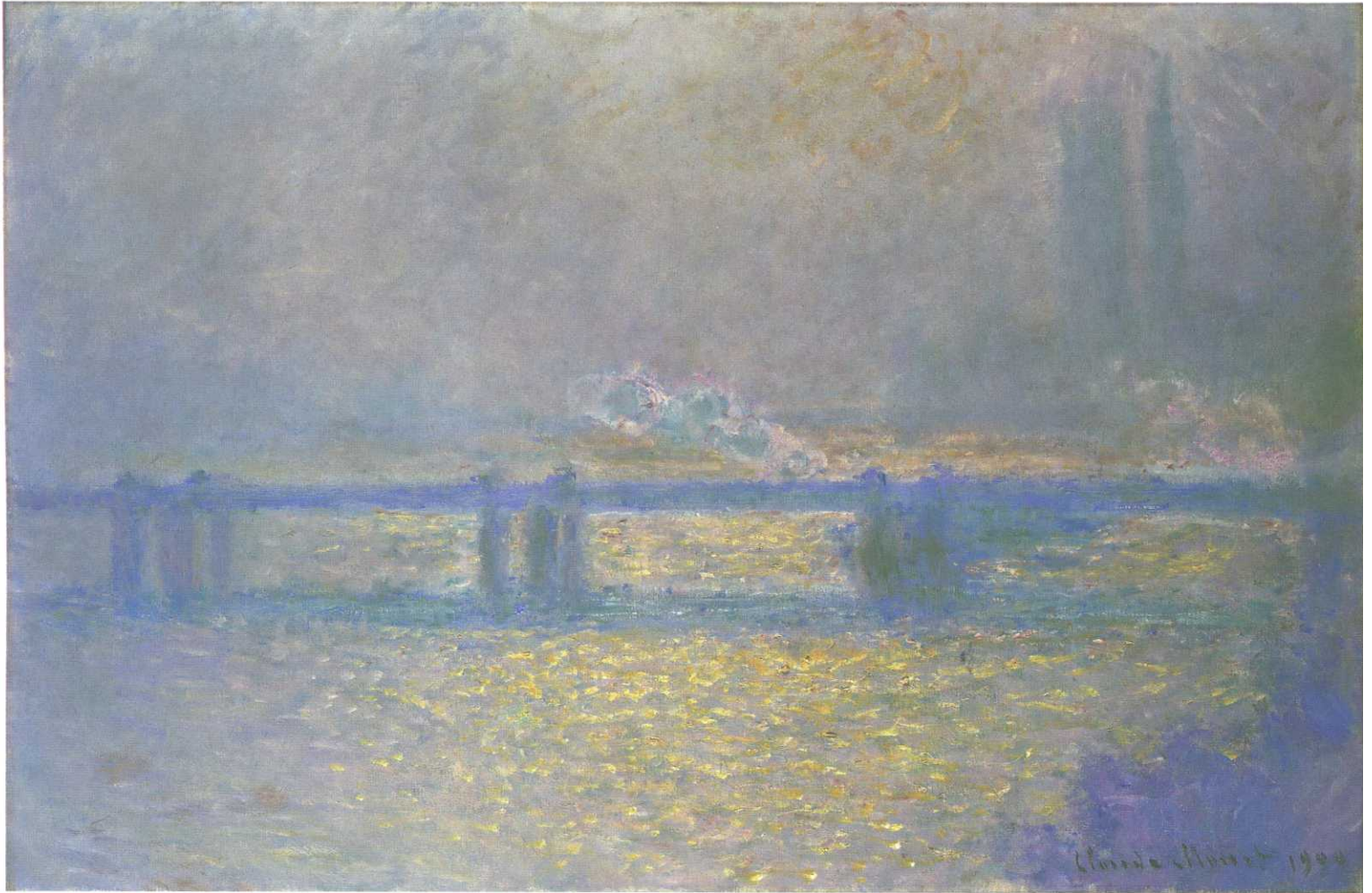
61.959

In 1890, seven years after settling at Giverny, Monet bought adjacent property, which became the nucleus of his water garden. A tributary of the Epte River that flowed through it and a dredged pond provided a setting for various species of water lily and other aquatic plants. The far bank of the pond was joined to the rest of the property by a footbridge, inspired by a Japanese print.

Monet's serial views of the water garden began in 1899. Contemporary photographs of the garden indicate that Monet altered the scene very little, although he was selective of what he chose to paint, and how. Overlapping vigorous brushstrokes of red, violet, blue, and green pigment in varying lengths—long arcs for foliage, short

flicks for reflections in the water, broad horizontal strokes for the bridge—densely cover the canvas. Water, plants, and bridge all have equal emphasis; the brushstrokes no longer gently describe form but are themselves the primary focus of the picture. The visual profusion of this natural world of Monet's own devising is stabilized by the traditional means of corresponding rhythms and rectilinear organization.

L.H.G.

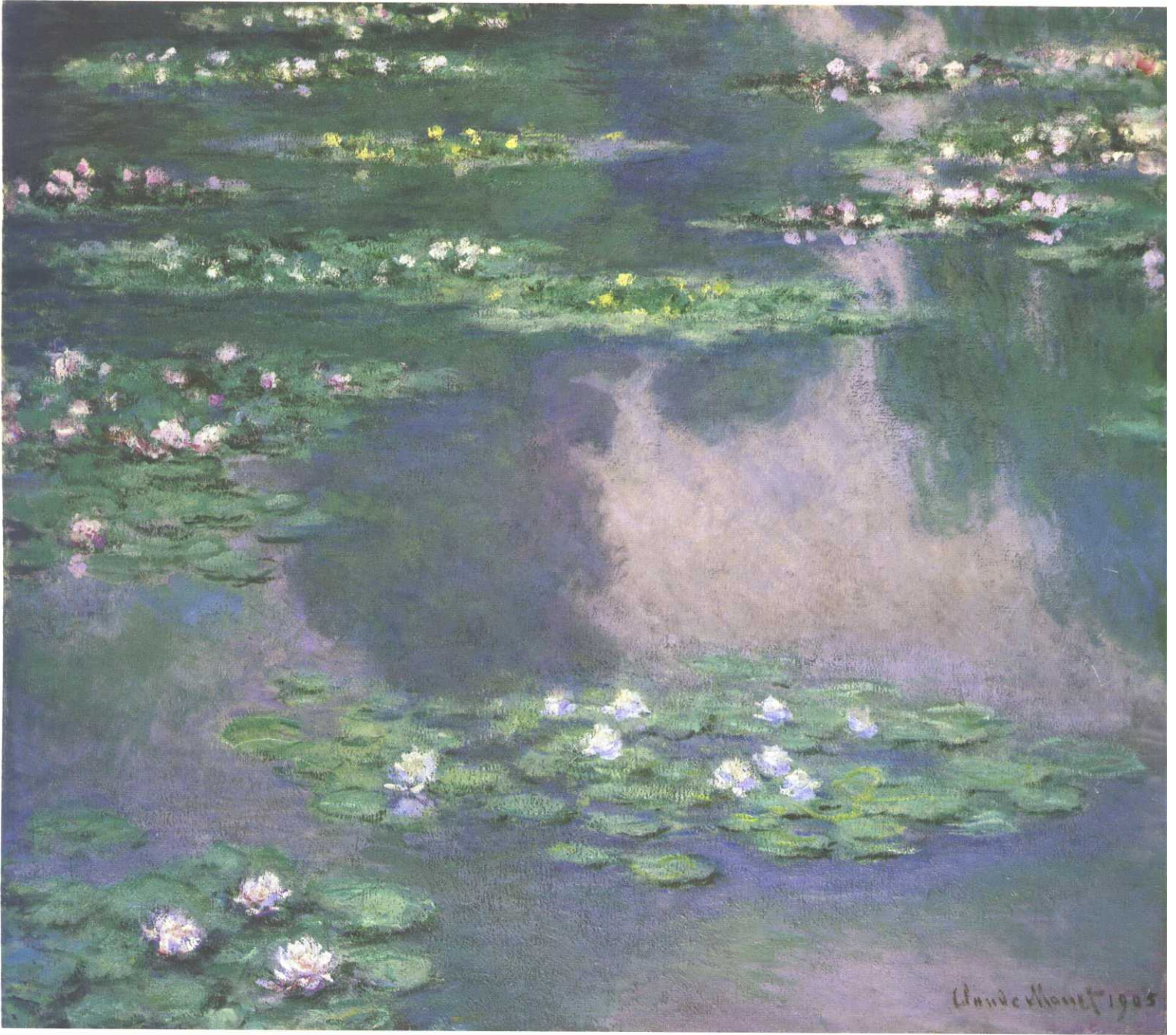


36
Charing Cross Bridge
Signed and dated 1900
Oil on canvas
23⁷/₈ x 36 in. (60.6 x 91.5 cm.)
Anonymous Intended Gift

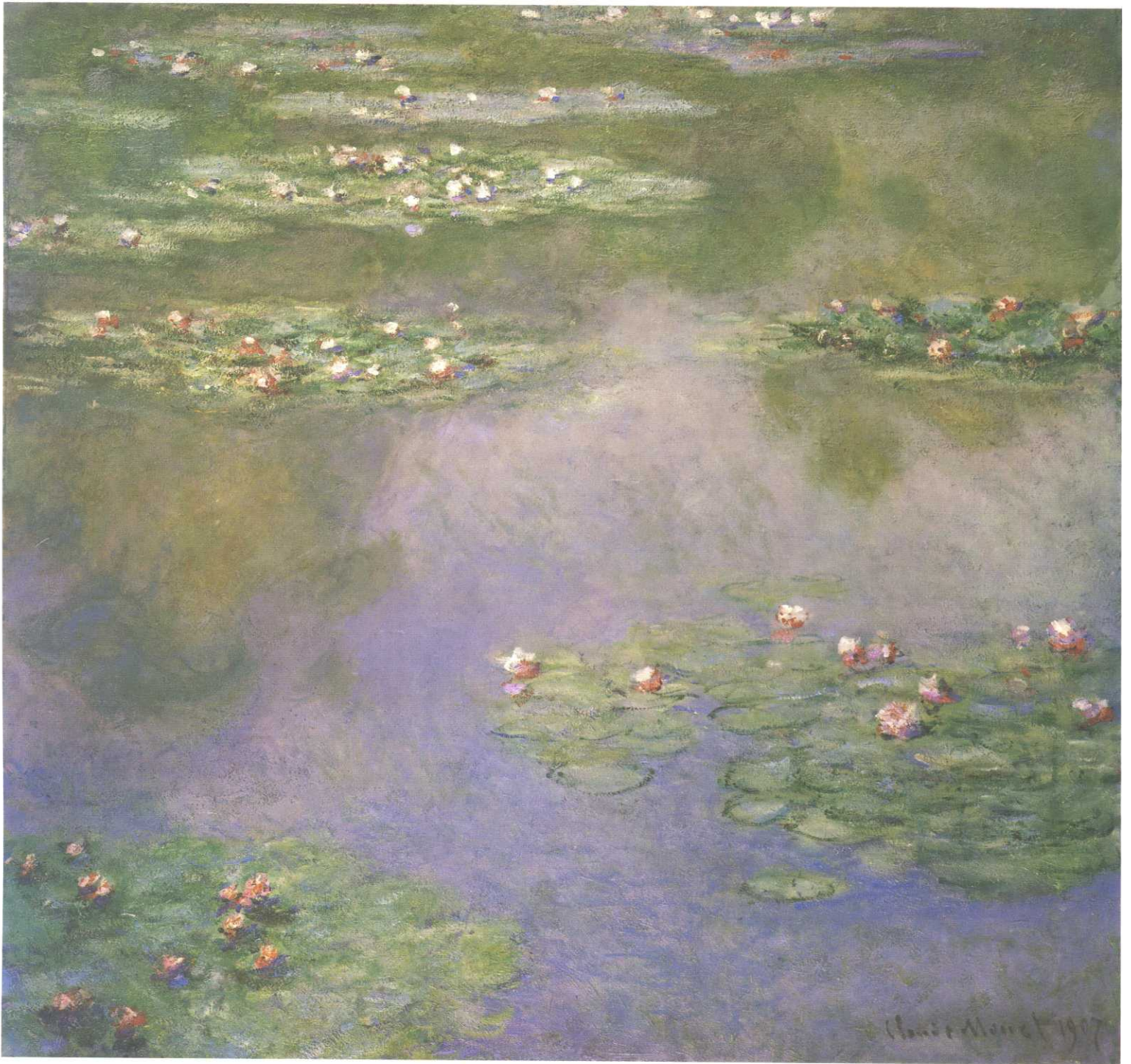
Monet worked in London in the fall of 1899 and in the two succeeding winters. He spoke of his preference for London in winter with its "mysterious mantle" of fog. From his balcony in the Savoy Hotel overlooking the river, Monet looked down on the rigid form of the Charing Cross railroad bridge and the Houses of Parliament in the distance. The structures in the painting, broadly painted in flat areas of muted color, establish a geometric surface order that underlies the atmospheric whole. Monet eliminated all specific detail in this painting and restricted his palette to insubstantial pale blues, pinks, cream, and yellow to suggest winter mists on the river. Only the puffs of train smoke and flicks of yellow light on the water seem to penetrate the fog.

Thirty years earlier, in the fall of 1870, Monet had taken refuge in London from the Franco-Prussian War and occupied himself painting London parks and the Thames. In his turn-of-the-century Thames series, comprising almost one hundred paintings, Monet restricted himself to three motifs visible from the river, the Houses of Parliament, Waterloo Bridge, and Charing Cross Bridge. At this time Monet made contact with Whistler, whose work he admired; a connection can be seen in the flattened, atmospheric quality of Monet's Thames series.

L.H.G.



37
Water Lilies I



38
Water Lilies II

37

Water Lilies I

Signed and dated 1905

Oil on canvas

35½ x 39½ in. (89.2 x 100.3 cm.)

Gift of Edward Jackson Holmes

39.804

38

Water Lilies II

Signed and dated 1907

Oil on canvas

35½ x 36¾ in. (89.3 x 93.4 cm.)

Bequest of Alexander Cochrane

19.170

Reflections on water occur in the paintings of the late 1860s, but it was not until his *Mornings on the Seine* series of 1896 and 1897 (nos. 33 and 34) that Monet began to blur the boundary between reality and reflected illusion. By the time of the *Water Lilies* series, they are fused

When Monet resumed work on paintings of his water garden, he observed it from a radically different vantage point. The purchase of additional land for the garden area, and excavations undertaken in 1901 enlarging the reflecting surface of the pond itself, perhaps stimulated Monet to focus on the water and to eliminate most indications of the surrounding garden. Without the traditional reference of a horizon line, only the water's surface remains, mirroring the garden along its banks and the clouds above, and supporting floating water lilies. Loose, abbreviated brushstrokes densely cover and emphasize the two-dimensional surface in lush layers of blue, green, and violet, accented with cream, magenta, and yellow, simultaneously evoking plants and reflections suspended on a liquid whose depth one can only guess.

Monet continued to explore the possibilities of his water garden for the rest of his life. Although the paintings in this series are increasingly abstract until the late images dissolve in light and color, forms are still recognizable in the work of 1907; only the water lilies themselves are less defined than in the 1905 version. In the larger later works, Monet expressed his increased freedom of vision with a corresponding freedom of brushwork. He described to Roger Marx in 1909 his intention to "capture better the life of atmosphere and light, which is the very life of painting, in its changing and fugitive play. Then, what does the subject matter! One instant, one aspect of nature contains it all." The wonder is that, despite the fact that Monet repainted the series in the studio, the pictures retain an impression of fluctuation and spontaneity. In these apparently timeless and intangible images, Monet joined his concern for light, reflection, and color with his passion for flowers and water.

L.H.G

Monet made much use of the stabbing technique of application. The roughened paint helps to scatter the light falling on the picture surface, giving it a shimmer equivalent to that of light falling on actual water and flowers. Within these passages of rough paint there are areas where the surface was smoothed out when the paint was still wet or by a later application of another tone.

The water lilies along the bottom edge are painted with individual strokes to form each petal, and given more form by cool shadows. As the clumps of lilies recede into the distance the defining shapes become more blurred and uniform in color. The shadows cast by the lily pads fade away finally in the blue and green reflections of the trees.

Poincaré

The physical mathematician Poincaré, contemporary with these two artists, acknowledges in his writings that science proceeds by metaphor. Science for him, is objective when it tenders the relations between objects. A theory that accomplishes this may eventually suffer disrepute, but something of it persists, perhaps in another form, through the succeeding statements of theory. This is the true relation. Science seeks to synthesize our impressions of things by virtue of these fundamental or lasting relations. "Under the new envelope[of a scientific theory] one will recognize the essential traits of the organism"(24). Poincaré maintains that something in science remains constant and it is the task of a new metaphorical view, or theory, to reexpress this in a suitable language. As he asserts his concept of relativity and considers the effect of the quantum hypothesis on physics, Poincaré expands upon his sense of science as both a metaphorical and conservationist activity.

In Poincaré's discussions of space and relativity, he seeks to distinguish the realm of direct experience from that described by physics or mathematics.(25) He defines a geometric space, in the mathematical sense, with properties of being continuous, infinite, three dimensional, homogeneous, and isotropic. In contrast visual and tactile space, however, possess none of these ideal properties except perhaps continuity. An image is limited and finite in the visual field. Since every point cannot be

identified with any other point, this space is nonhomogeneous. For Poincaré, the images of visual space are two dimensional, we derive a notion of the third dimension from judgments about our experience, and by adjusting or "converging" the eyes to account for that. So the third dimension is not equivalent to the other two, and the space is non isotropic. The space that experience relays to us is conditioned by the characteristics of our bodies. Since different locations on the retina do not function alike, there is, by our nature, non uniformity in our visual perception of things. Even each muscle relates a different sort of sensation so the number of dimensions in the space of motion, that Poincaré terms "motor space", should correspond to the number of muscles.

Poincaré argues that we do not extract these distinctions from the input of different muscles because we unify and converge them together by habit. Sensory or perceptual space arises through the conjunction of what Poincaré identifies as visual, tactile, and motor space, apart from geometric space. He defines a psychologic time in parallel to his perceptual space, which interacts intricately with experience.(26) Poincaré claims we do not have a direct method for judging relative durations of time, the personal or psychological measure is qualitative and any efforts to obtain a quantitative definition of time or time duration are non rigorous, instrument dependent. The definition of a physical time, just as the abstraction of geometric from perceptual space, is a matter of convention rather than physical truth. The world we witness through our perceptions is not that

we model by geometry; we see in perceptual space but the succession of these sensations brings us to the construction of geometric space. Poincaré insists that it is from observation of the translation of rigid objects that our conception of geometric space, homogeneous and isotropic, emerges. If we lived in a universe governed by other physical laws, our experience of and familiarity with space, that guides our selection of Euclidean three dimensional space to correspond best with intuitive impressions would be different. Geometric space is a synthesis, in understanding, from the experienced space, as a model "convenient" and abstracted to an independence from perceived space, neither predetermined, nor "true". The human senses, however, are integrated in a physical world of experience, and perceptual space is their direct and subjective record. Its measures are sewn within the human body and vision is a response of wonder and custom to nature. Nature provides the initial evidence for the geometric models but they are rather a representation in thought. They are a manner of metaphor, idealized from the abundant intricacy of experience.

From this notion of geometric space as a mathematical construction independent from but originating in our sensation, Poincaré maintains his position on relativity. Since geometric space itself is arbitrary, physical laws do not pertain to an absolute reference system. The physical evolution in time of objects depends just upon their initial relative displacements and velocities. Geometric space offers only one format for defining the mutual orientations of bodies, but does not relate

these bodies to the space, just as perceptual space is composed from the specific impressions of our vision and muscles, and nature.(27) The experienced world is of sensations and objects, discovered through relative gesture, and this recognition provides an initiative for what Poincaré terms the principle of relativity. The ranking of events in time, whether simultaneous, independent, or causally connected, can also only be arbitrary. Poincaré finally states that our description of relative causality arises from an effort to express natural laws in a form "as simple as possible"(28). To found physics upon an absolute reference for time and space is unwieldy. It is from this requirement for simplicity that the speed of light is constant. It serves as the reference for detecting length contraction in the Lorentz sense, and for revising our attitude toward time. Nothing is relayed instantaneously, the measure of simultaneous times is conditioned by the speed of light. Poincaré then sees that time and space fuse "deux parties d'un même tout. . . qu'on ne puisse plus les separer facilement".(29) Poincaré rejects both absolute space and time, and even relative space and time are measured by mere convention; the relative geometric coordinates possess no intrinsic or physical meaning. He observes that although the physical description may depend on something other than initial position and velocity, we cannot know what that might be, as long as our "instruments" continue to assure us that this is sufficient.(30) The unknown and absolute may be neglected without consequences. The principle of relativity appears through our experience to specify the our

experience to specify the interaction of separated objects, but since it is a way of forming geometry, it becomes a convention "sugg  r  e par l'exp  rience, mais que nous adoptons librement". In this way he justifies his statement that the new relativity proposed by physicists (Einstein) is perhaps more convenient, but it need not disrupt "vieilles habitudes". As it is a convention and not a revelation of the world, the old theory may be retained "Je crois, entre nous, que c'est qu'ils feront encore longtemps".

Poincar  's relativity, just as his construction of geometric space, through the union of experience and idealization, becomes a tool, a method of speaking rather than a fundamental truth. Geometry and relativity form part of the context for nature that physical observations must translate to from the more integral matrix of experience. The world perceived by experience is colored by the functioning of the eye and individual muscles, it offers only the roughest sketches of nature. These outlines we refine through convention to become the geometry and relativity still consistent with other geometries, but more usefully, provide a metaphorical setting for mathematics and physics. The reality of experience is sensed by the many perception of vision and muscles, while that of physics is made by metaphor.

Although Einstein's Theory of Relativity is well known by the time Poincar   writes the last essay referenced here, Poincar   does not feel impelled to accept relativity in that role. Poincar   accepts and expands upon the Lorentz version, where lengths contract and masses vary with velocity, "no body can

attain in any way a velocity beyond that of light";(32) space and time merge, but the theory does not approach the transformation of thought Einstein endows it with. Poincaré's prophecies about a new mechanics do not deny other geometries or statements of relativity, but he considers them equally compatible with the established conventions. Poincaré admits that often, to reinstate an old theory which is still valid, one must rephrase it "in another language". Geometry and relativity are less the metaphor for nature than the language needed to express that metaphor. In an ultimate restructuring of world view, such as Einstein accomplished, even that language must change, and be flexible.

Poincaré intuitively interprets the physics about to be born with a sweep of insight; it may become a science founded on other attitudes toward nature.(33) Perhaps "statistical law" will replace the differential equation, and chance reign over an illusion of mechanical determinism that we now see. The speed of light may enter mechanics as an ultimate limit to motion; what is still a dynamics "we only succeed in catching a glimpse of". Classical mechanics could persist as a "first approximation" and the two descriptions of motion could interleave and complement the other, each valid in a different velocity range. The old mechanics is yet a "precious weapon" vital in shaping the scientist's perception of nature. It will lend its support to the remaking of physics so that finally the new ideas "will rather complete it".(34) Poincaré verges upon the coming world as his sense of physics urges a continuity and exchange between the

two. The two models for physics will begin to communicate and metaphor will join them in a common vision. Poincaré's respect for the old mechanics is aroused by a conviction in its beauty and predictive success. The incipient science must capture and cleave to this and the manner that it does so will pronounce the creation of a new physics.

Poincaré's speculations on the hypothesis of energy quanta illustrate this contest of the first hints of things. Again, a new image invades the classical vision, seeming incompatible, and precipitating another hypothesis. The status of each theory is not resolved. A theory "prend du corps" when it explains new facts; to accomplish this it often must be altered and expanded. The theory changes in response to the data. In other cases the new observations are so closely related to those previous that the same theory accounts for both sets; they only seem to be new. In this context, Poincaré considers that the hypothesis of atoms evolves as more than just an apt "fiction"; now that atoms have been counted, we seem to see them.(35) The notion of the atom has attained a life apart from the indivisible, fundamental particle proposed by Democritus. It is in turn composed of the smaller particles observed in such processes as radioactive decay. Poincaré distinguishes between the radioactive atom which decomposes to two lesser atoms, and the molecule, where the particles are chemically bound. Radioactivity opens the individual atom, revealing its separate activity. The atom itself has become a "réalité", another world, and our sense of its complexity is enriched by further experiments. Poincaré

models the atoms as a closed world to which radioactivity offers a peek. The environments interior and exterior to the atom meet only rarely. The quantum hypothesis is part of an attempt to describe its inner realm.

Poincaré selects the apparent breakdown of the theory of equipartition of energy as the setting for his discussion of the quantum hypothesis.(36) Equipartition of energy postulates that ideally the total heat energy of a gas or vapor is equally portioned among the degrees of freedom of the constituent particles. For these experiments the degrees of freedom, rather than the atoms, were counted. Each atom was assumed to possess three degrees of freedom corresponding to projections of the motion on the three Cartesian axes. Equipartition of energy predicts that the energy distribution of radiation in a cavity, a black body, will increase as the frequency squared, with an infinite total radiation. This does not coincide with experiments which instead indicate a cut off at high frequencies. Planck obtained a relation for energy density as a function of frequency which rises to a maximum and then exponentially declines at high frequencies. As a result of this, he abandons the classical interaction between matter and radiation: energy is exchanged not in continuous, arbitrary amounts, but only by certain discrete quantities, quanta, of energy. This classical theory also fails to explain why specific heats, the ratio of the quantity of heat added to a system to the consequent change in temperature, per unit mass, decrease so dramatically at low temperatures. In Poincaré's demonstration model of the closed

atom, there is no equipartition of energy, no equilibrating temperature between the inside and outside of the atom. The model is not adequate to account for the classical collapse evolving from equipartition of energy. Poincaré then frees the model somewhat and wonders if the unfolding complexity of the atom introduces additional degrees of freedom that must be incorporated into calculations of specific heat. He suggests that the atom retreats to its own world at low temperatures, severing its connection with the outside, the degrees of freedom. The atoms' degrees of freedom, its "articulations" seem to freeze as if they lose "tout contact avec l'extérieure e se retireraient. . . dans je ne sais quel monde ferme".(37) The quantum hypothesis coincides with this notion, since the atoms can accept only units, not fractions, of energy. If a whole quantum is not available, they receive no energy. Poincaré recognizes that the classically observed atom is a function of its degrees of freedom, although the truer atom is almost a separately governed "monde", communicating only by a specific code, the quanta.

Poincaré discusses the nature of the quantum proposal, reflecting that there might be some such "universalité" in it as in the Hamiltonian equations of motion in "l'ancienne Mécanique".(38) The vibrating atom, or resonator, receives or relinquishes energy only by "sauts brusques", each jump in energy is a multiple of a constant quantum, not the same for all atoms. The quantum of energy is inverse to the wavelength or period, of incident light. To agitate a resonator of short period then requires a correspondingly large quantum of energy; at low

temperature, such a resonator will more likely be motionless. This also qualitatively explains why there is little short wavelength light in blackbody radiation. The quantum theory permits only a finite number of states to a physical system, attained by discrete jumps of energy, not continuously. Poincaré states that all states could be considered equally probable, but Planck restricts this probability by equating the product of displacement and momentum with a universal constant, "un véritable atome" or indivisible unit. Poincaré imagines "hypothèses mixtes" between Planck's and the classical view of mechanics: perhaps there is never a true collision, and all our forces of mechanics are actually electromagnetic, acting at a distance--this may lead to a view of physics again different from the quantum.(39) Or one might take many trajectory curves, described continuously except where there is a leap from one curve to another induced by the neighboring points. But Poincaré adopts the theory in Planck's form: "L'univers sauterait donc brusquement d'un état à l'autre". In the interval between jumps it remains immobile; these intervals when the system is caught in a single state are indistinguishable. Poincaré then regards this as a new discontinuity, or quantization of time; "l'atome de temps"(40) is the time of stillness. The proposal of discontinuity in nature incites Poincaré to reexamine and reexpress many of the classical conceptions. The quantum, the unit of energy or pause of time, might be the "atome" in the sense of Democritus, beyond which there are no further subdivisions, no further "mystère". He admits that the classical

theories, which had seemed such a consistent description of nature now encounter an "obstacle inattendu", the theory must be altered. Planck's hypothesis although "tellement étrange" still is a useful modification, but it must surmount difficulties both "reelles" and ingrained in the "habitudes" of our thought. At this point Poincaré asserts that it is impossible to foretell what sort of theory will be accepted, perhaps one other than those he considers: is the dominion of discontinuity over nature "définitif", or is this discontinuity only an illusion for a process of continuous steps.(41) The metaphor for nature which physics provides is before a new vision, searching for a language to make its expression.

Poincaré explores some of the discrepancies presented by the quantum theory, claiming that they do not condemn the theory, but should be expected whenever "on bouleverse toutes les opinions reçues".(42) He sought to demonstrate that thermodynamic equilibrium was a consequence of the quantum proposal. The vibrating atoms can absorb or emit energy only of a fixed quantum, so if the atoms exchange just by these units of light, the initial apportionment of energy would remain undisturbed. Poincaré suggests two other mechanisms for energy exchange: through collisions of free atoms or electrons with the resonator or by the light changing its wavelength. He argues that both possibilities must proceed according to the same theory of radiation, for if not, and nature alternatively favored one or the other theory, a final steady state would be impossible, contrary to the second law of thermodynamics. In conventional

mechanics, the continuum is represented by the factor one multiplying the equations of motion of interacting particles; they can be transformed continuously. With the quantum hypothesis, however, the energies are discrete and cannot be represented by a continuous function. A state will not occur when the energy is not a quantum multiple, and from this Poincaré obtains Planck's law. To discuss the Doppler shift, Poincaré supposes a gas of moving molecules with light of equal wavelengths incident upon them from several directions. In the rest frame of the molecule, using a version of Lorentzian relativity, light arriving from different directions will not share the same apparent wavelength. Light reflected from these molecules will still have the same apparent wavelength magnitude, but a changed true wavelength. Poincaré derives the classical Rayleigh law for scattering, but is unable to discern what must yield in order to attain Planck's law. He is torn between his form of the principle of relativity and the diffusion of light by molecules at rest: "nous ne pouvons guère pousser la fantaisie jusqu'à croire que le ciel n'est pas bleu". He proposes several alternatives for a mechanism of discontinuous energy. The light itself may be discontinuous and fall "par petits bataillons séparés" upon the molecules, which does not change the light. Or the light arrives continuously, but must wait in an "antichambre" for the molecule to diffuse it by successive quanta, but here, parts will be out of phase and not interfere normally with incident light. Poincaré does not however select or resolve these notions further: physics here is

in the realm of speculation between theories that don't quite cover nature. Neither the classical nor the quantum hypothesis serve as an adequate metaphor for the experimental observation of nature.(43)

Poincaré concludes his discussion of the hypothesis of quantized energy by suggesting that we cannot yet select one theory over another. The older theories, which have been so well substantiated, should be conserved; they can neither be abolished nor preserved intact. Some change must come "nous devons chercher à les plier". What has been so carefully interwoven together as an image of reality, like the theory of equipartition of energy, must have some merit. The modifications of these theories are so alien "on hésite à s'y résigner".(44) Poincaré, reluctant to abandon the classical theories and uncertain about the quantum mechanism, recognizes the unstable meeting of theory and experimental observation, of metaphor and nature, a sense of a new world. For Poincaré, this world must retain some expression in the language of the old.

Poincaré unfolds his own attitudes toward metaphor in scientific thought through several essays on scientific and mathematical creation. For Poincaré, the scientist studies nature "because it is beautiful" rather than for any definite goal, and this beauty of an intellectual order guides his selection of observations and his sense of theory. As science seeks a simplicity of expression, it unites "beauty and a practical advantage"; an elevated sort of economy appeals to the scientific intelligence.(45) Only those arrangements of facts or

ideas which have this special beauty will be chosen, or even seen, by the scientist. This "esthetic sensibility" then acts as a sieve over all the available possibilities.(46) One who truly creates in science or mathematics sees the "parentage" of things, and does not exhaustively establish and catalogue them. The one reveals "the soul of the fact" the other merely states the fact. A creative insight evinces order, a new predictivity, from the preceding bewilderment. "At a glance all things become evident. It is not alone order, but the unexpected order, which is of real worth. The machine may grind upon the mere fact, but the soul of the fact will always escape it".(47) Scientific creation resides in the embedding of a fact among relations, in the language it is now translated to.(48) For Poincaré, then, the activity of science is metaphorical, it strives toward a new union of facts or ideas that is in essence beautiful, in origin nature. What was once disparate and foreign becomes part of a single language and vision. Since this process of metaphor is crucial to real scientific perception, specialization "is a vexatious obstacle to the progress" of science.(49) The act of scientific thought thrives upon diversity and is sparked into existence by beauty. Metaphor embraces both process and product of science, for through both the way of seeing nature becomes new.

So for Poincaré the domain of perception is inhabited apart from the created worlds of science and mathematics. Science employs structures such as geometry and relativity as part of its mechanism, the beginning of its translation from nature to a physical representation. These comply with our perceptual

notions only as they indicate a certain prejudice or competence (for example, dealing with three dimensional Euclidean space, rather than another) but need not inhibit scientific progress. Other geometries could be proposed, but would be more awkward to work with. For Poincaré, understanding and distinguishing perceptual from geometric space is introductory to the characterization of science from experience, but neither constitute science or nature. The taking of nature into science, the metaphor, is cast in other ways. It is as richly imaginative as Poincaré's prophetic discussion of the quantum proposal. Poincaré finds in the classical theory such a power for prediction that he is wary of abandoning it entirely. The quantum idea is compelling in its treatment of black body radiation but not clearly formulated as a total theory. Poincaré perceives the problem as one of boundaries between the continuous and discontinuous, of a strange landscape issuing from within the atom. This physics directed by the atom is not unaffected by the macroscopic laws, and the quantum theory should exploit the excursions between worlds until it and classical theory combine more profoundly as one theory. At the moment, he demonstrates the acute incompleteness of the two statements.

Science, to Poincaré, is creative when it invokes a new way of seeing nature, when it grasps the observational data freshly and swiftly and sets them into beauty. The imminent theory is unpredicted, startling perhaps, although it results in a restored world view--predictive, stable, and in a sense, beautiful. Scientific vision has a purpose other than recording the world,

it must synthesize from the world a separate order. Ordinary perception is wrought through the human immediacy of sight, touch, and motion; scientific vision by the immediacy of thought venturing from experience. Thought plaits metaphor from the vivid touch of nature into science, a wonder aside from nature. "Thought is only a gleam in the midst of a long night. But it is this gleam which is everything".(50) From this we make vision.

Conclusion

The turn of the century represents a transition between cultures and habits of thinking, the techniques and models established for conversing about the universe seem to falter. The accustomed language, so well refined, does not quite express all the impressions of experience and those it cannot describe are no longer peripheral oddities, but become more crucial as a potentially legitimate part of experience. The natural world must be approached in a fresh fashion, for even if the classical methods have not failed, they have not said everything. Only through metaphor, by a recreation of both language and the attitude toward, or perception of experience will this incongruity of meaning or uncertainty of interpretation be overcome.

In conclusion, then, this study of specific paintings and ideas formed by two artists and a scientist at the beginning of this century opens into the worlds of their creation. Experience of nature has persuaded each of them that the conventional techniques and customs for seeing and relating are not sufficient to it. In order to attain a valid expression, both the way nature is perceived and the way it is communicated must be freed from them. This does not merely translate from the language of the old to the new, but restructures the basis for thinking. Metaphor takes the established statement into another realm where even the act of statement can not remain the same. Nature is

animated by a fresh metaphor that invades and reforms vision. The language of the art or science pursuant to this reflects and is remade by the metaphor.

Cézanne writes "Pour les progrès à réaliser il n'y a que la nature et l'oeil s'éduque à son contact. Il devient concentrique à force de regarder et de travailler"(July 25, 1904). Nature is a source for the making of metaphor and the artist trains himself in the vision of it. The paintings are the record and process of this education in seeing. Cézanne unmask his eyes from prejudice and summons the paint to respond. The intensity of his experience of nature influences the way he reconceives the two dimensional picture space; the paint must become an agent of vision. Cézanne renders in his painting, not the specific details of nature, but his recognition, on a more powerful, broader scale, of how it acts. The paint reveals the way the mountain and sky fill space instead of matching contours and tones of canvas to literal translation. To effect this, the paint is applied in overlapping strokes, each one a fresh response to what is seen. Boundaries between forms on canvas attain a different significance, not to separate or define, but rather to interpenetrate color with color, to see all of nature alive. The metaphor acts, through his painting, not by equating one thing with another, but by seeking to make composition from an infusion of life in nature. The mountain is not the same each time since each painting is a fresh creation, beginning again from the closeness of nature. It breaks away, compelling a new vision. Cézanne, then, does not permit himself to systematize

his vision, every painting makes synthesis from it in an independent affirmation of the metaphor. There are no rules for translating this vision into painting, rather the metaphor is reevaluated and recreated. The consistency between the paintings arises less from an adopted schema, than from a developing coordination between the image received by the eye and the artist's use of paint. He does not just invoke a novel technique or design, or a different composition, but escapes those boundaries entirely.

For Monet, a detail, not of form but of color, brings nature into sudden vividness. Each instant in characterizes as a unique meeting or atmosphere of color by light as it comes across nature, and Monet, witnessing this, is compelled to abandon methods for painting that do not convey it. With rich texture of paint he seems to capture the shimmer of light at a moment, rather than a landscape immobilized by the moment. Colors of paint cross each other as part of Monet's reexamination of the way of seeing this light; the paintings forcefully call the observer to construct his vision as well. As the paint sets off colors, and light plays with form, the elements that constitute perception evolve. The metaphor Monet enacts through his painting does not merely isolate light and paint as alternative agents of vision but evokes from them relationships that liberate sight. Nature does not from delineated contours, but at once, in the immediate impression, and light, rather than some more stable aspects of nature, engenders this. Monet takes the response of vision to this light, that filters into and out of color, through

the paint with a sense of its subtle delicacy. The individual paintings present an instant of this glow concentrated in texture and color, each pair tempers the web of brilliance by recognizing the passing of things and bringing vision to meet this. Monet's metaphor for nature lies hidden in the dawn, when light blooms across it, transforming vision in a flush of glory.

Science is not ordinarily depicted as a metaphorical process, but this study of Poincaré's thought indicates that it, too, shares in this sort of creation. In science, the new vision results perhaps in a set of rules for describing nature, but these rules will propose, not merely a different scheme of things but one which could not have been predicted on the basis of the old. Poincaré recognizes that he is at a point between two physical expressions of nature; between the well-delineated classical theory and the proposal of discontinuous energy levels that is not yet a theory. His insight predicts the way physics might resolve the apparent impasse, relying upon an extensive internal experience of scientific creation. For Poincaré, physics will pluck its new form from an unexpected source, and this may revolutionize the way of seeing all of physics. Although the relations between facts, the scientific language, will change, fundamental physical truths remain constant, yet illuminated. The new physics then must then consult both with classical theory and more recent hypotheses, it must arise from an unrestricted awareness of all things. That physics will be itself a metaphor for seeing and describing nature, but it would only have become possible through a metaphorical reconception of

nature, that is almost necessary even to recognize the inadequacies of classical theory. Poincaré claims that a sense of beauty guides the birth of a new physics. That physics may result, not just in a more consistent explanation of empirical observaion, but shall rediscover beauty, perhaps in strange and elegant forms. Poincaré states that the ordeal we undertake in order to accomplish this "is for seeing's sake, or at the very least that other may one day see"(50).

Metaphor is a more powerful and revealing method of perception and creation in art and science than mechanistic explanations. Through it, the process of conception and creation becomes real as the mating of worlds in the struggle for new expression. Nature lies as an untouched realm beyond the metaphor, but an acute and sensitive vision of nature sparks the need for metaphor. Perception of nature finally transcends the rules set before, urging another sense of seeing and of wielding language. Through vision, experience is taked by the metaphor; through the creative language the new world is consummated. The connections between art and science form as both participate in metaphorical creation, rather than at a more literal level. The creative vision announced by art and by science is not the same, but in each it was attained through a rediscovery of sight and a corresponding human action. Metaphor is internal to any creation that renders the world so new the traditional ways of perceiving and communicating are incommensurate with it. The artist or scientist must dare to renounce classical descriptions in order to give birth, not just to something new, but to something true

to what he sees. The world finds a rare pledge of dawn, vibrant within the act of seeing, ripened by metaphor.

Footnotes

1 Paul Cézanne, Correspondance, John Rewald, ed., (Bernard Grasset Editeur: Paris, 1937), Oct. 23, 1905. All further quotations from Correspondences will be noted in parenthesis in the text.

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4 Marthe de Fels, La Vie de Claude Monet, (Librairie Gallimand: Paris, 1929), p. 22.

5 Ibid., p. 29.

6 Ibid., p. 49-51.

7 Ibid., p. 62-4.

8 Paul Gachet, Lettres Impressionistes, (Bernard Grasset, Editeur: Paris, 1957), Feb. 16, 1878.

9 Fels, dated 1862, p. 98.

10 Ibid., p. 147.

11 Jean-Pierre Hoschedé, Claude Monet: Ce Mal Connu, Pierre Cailler, Editeur, (Geneva: Switzerland, 1960), vol. I, p. 117.

12 Ibid., p. 20.

13 Ibid., p. 48.

14 Ibid., p. 65.

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- Fels, dated 1923, p. 194.
- 16 Hoschedé, p. 131.
- 17 Fels, p. 208-11.
- 18 Ibid., dated 1889, to Geffroy, p. 175.
- 19 Lionello Venturi, Les Archives de L'Impressionisme, (Durand-Ruel, Editeur: Paris, 1939), vol. I, Apr. 20, 1896, p. 350.
- 20 Ibid., July 3, 1905, p. 404.
- 21 Georges Clemenceau, Claude Monet--Cinquante Ans d'Amite, (Librairie Plon: Paris, 1965), p. 22.
- 22 Hoschedé, vol. 2, Apr. 6, 1895, p. 112.
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- 24 Henri Poincaré, Science and Hypothesis, in The Foundations of Science, George Bruce Halsted, trans., (The Science Press: New York, 1929), p.
- 25 Ibid., p. 66-80.
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- 27 Science and Hypothesis, p. 83-90.
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- 29 Henri Poincaré, Dernières Pensées, (Ernest Flammarion, Editeur: Paris, 1919), p. 53-4.
- 30 Science and Hypothesis, p. 114.
- 31 Dernières Pensées, p. 53.

- 32 Science and Method, in Foundations of Science, p. 509.
- 33 Value of Science, p. 319-20.
- 34 Science and Hypothesis, p. 152.
- 35 Dernières Pensées, p. 196.
- 36 Dernières Pensées, p. ~~195-220~~.
- 37 Ibid., p. 208.
- 38 Ibid., p. 177.
- 39 Ibid., p. 181.
- 40 Ibid., p. 188.
- 41 Ibid., p. 191-2.
- 42 Ibid., p. 210.
- 43 Ibid., p. 212-9.
- 44 Ibid., p. 219-20.
- 45 Science and Method, p. 367.
- 46 Ibid., p. 392.
- 47 Henri Poincaré, "The Future of Mathematics", in Smithsonian, 1909, given at Fourth International Congress of Mathematicians, Apr. 10, 1908, p. 125-7.
- 48 Value of Science, p. 332.

49 "Future of Mathematics", p. 131.

50 Science and Method, p. 355.