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LITERARY AWARDS . STEICHEN PHOTOS
SCOTLAND CONNECTION

Wisconsin Academy Review

A JOURNAL OF WISCONSIN CULTURE

Wisconsin Academy of Sciences, Arts and Letters

Spring 1999 Volume 45, Number 3

Wisconsin Academy Review

Summer 1999

Time Out *by Edward Steichen. Enlisted men read while resting on the edge of* Lexington's *elevator, 1943. Courtesy the Navy Historical Foundation.*

FRONT COVER: Temple: Urn *by Sally Hutchison. Oil on canvas, 69 x 63 x 2 1/2 inches, 1996. Photo by Angela Webster.*

BACK COVER: Sea and Sky *by Sally Hutchison. Oil on canvas, 37 x 60 x 2 1/2* inches, 1998. *Photo by Angela Webster.*

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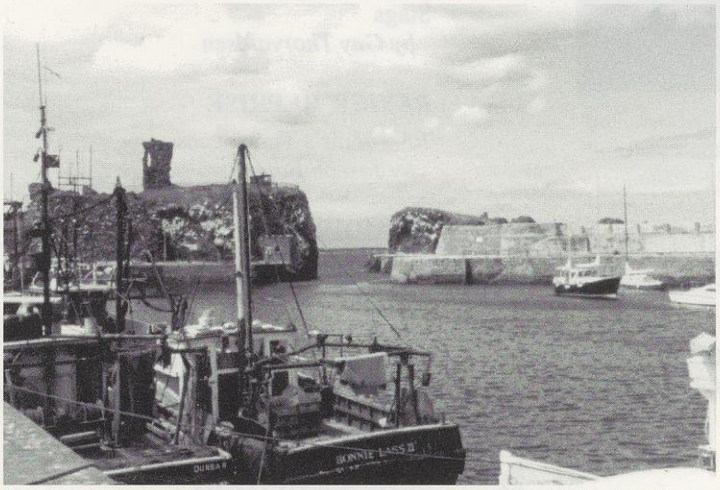
Contents

The Wisconsin Academy of Sciences, Arts and Letters was chartered by the State Legislature on March 16, 1870, as a membership organization serving the people of Wisconsin. Its mission is to encourage investigation in the sciences, arts, and letters and to disseminate information and share knowledge.

Editor's Notes

The Wisconsin Academy's commitment to Wisconsin writers is as old as the organization itself, and letters activities continue to develop. At this year's annual conference, the creative writing program was expanded to include high school poetry and short fiction in addition to the annual poetry award. An anonymous donor provided funds for all three awards, in recognition of the Academy's many contributions to Wisconsin's literary trove. In this issue the "Inside the Academy" department features the work of the 1999 award-winning writers.

One hundred fifty years ago this past April young John Muir and his family emigrated from Dunbar, Scotland, to Marquette County, Wisconsin, where Muir was inspired by the "glorious wilderness" and developed a love for nature that continues to inspire and inform. We have retrieved an article from a past *Review* which explores other—perhaps little known—aspects of Muir's genius: mechanical design and intricate woodworking. Excerpts from "John Muir's Timepieces" and photos of Muir's mechanical drawings will be included in a special exhibition honoring him at the Edinburgh International Festival in Scotland this summer.



Faith B. Miracle

Dunbar harbor and castle ruins in Scotland, where John Muir played as a boy.

The Scotland-to-Wisconsin trek was reversed in the 1920s, Bob Dott tells us, when two savvy young geologists from the University of Wisconsin take their expertise to the Highlands. Bob has written this interesting account in recognition of the sesquicentennial of the University of Wisconsin and in celebration of the National Historic Landmark status bestowed on Van Hise Rock in the Baraboo Hills in May.

While we're on the subject of Scotland, it is a coincidence that we can include a John Knox byline—no, not *that* John Knox, but a descendant of his. It is our practice to let poetry stand on its own merits, and we think "Pentecost 30 June 1993" does; but in this instance the accompanying letter was so interesting we decided to share it with our readers. And serendipity struck again when the short story "Stags," which is set in Scotland, was submitted for our consideration. Edinburgh in August for the international festival becomes ever more tempting.

The great Steichen celebrity and art photos appear now and then in such publications as *Vanity Fair* and exhibition catalogs; and when we learned there was to be an exhibit of Steichen's World War II photos at the Wisconsin Veterans Museum in Madison (January through May), we were inspired to develop a feature for the *Review*. Edward Steichen grew up in Milwaukee and bought his first camera there. Even as John Muir helped change the way we value nature, Steichen helped revolutionize the world of photography. The complexities of Steichen the man are borne out by the fact that although he was decorated for his service in two world wars, he remained a pacifist throughout his long life.

In addition to his innovative experiments with photography, he was interested in heredity and immersed himself in the study of genetics. He developed a passion for flowers and "designed a master plan" (Nevin) for hybridizing varieties of delphiniums, turning his gardens in France and later in Connecticut into amateur scientific laboratories.

Continuing with our serendipitous connections, John Muir's talented blending of art, woodworking, and mechanics is echoed in "Shoptalk," excerpts from Robert Probert's book *Archie's Way*, which is linked to Wisconsin through author, subject, and setting.

For many years Sally Hutchinson's artistic touch graced the Wisconsin Academy Gallery—initially she was gallery coordinator and later co-coordinator with Randall Berndt. We are especially pleased to present the work of our former colleague along with Nathan Guequierre's thoughtful commentary on her paintings.

Natural science and mechanics, music and welding, art and geometry, photography and genetics, meteorology and poetry — the convergence of discplines. It's what the Wisconsin Academy is all about.

This will be my last effort as editor of the *Wisconsin Academy Review*. I have been privileged to produce this publication for nine and one-half rewarding years, and I want to express my heartfelt appreciation to the contributors, readers, and colleagues who have been generous and supportive. Thank you all.

Faith B. Miracle

Wisconsin Academy Gallery schedule

June:	Peter Flanary, sculpture
July:	Beth Blahut, sculpture
August:	Valerie Mangion, painting

CONTRIBUTORS

▶ Tom Alesia graduated from Indiana University in 1988 and is a features writer for the *Wisconsin State Journal* in Madison. He is a cancer survivor, and his short story "Winter at the Zoo" is a "wildly fictitious version" of his own experiences in the fall and winter of 1997. In April he received the award for short fiction at the Wisconsin Academy's 129th annual conference held in Stevens Point.

▶ Joseph G. Baier was a professor of zoology at the University of Wisconsin–Milwaukee and served as president of the Wisconsin Academy in 1955. He was a member of the National Association of Watch and Clock Collectors and a licensed watchmaker. In 1976 when he wrote the article on the John Muir inventions for the *Wisconsin Academy Review*, he made wooden models of two of Muir's water clocks, and they remain part of the Academy's collection. This summer the models will travel to Scotland, where they will be on exhibition during the Edinburgh International Festival.

▶ Rebecca K. Conn is a senior at Rhinelander High School. She began writing when she was seven, and in addition to her interest in literature, her "other two loves" are history and art. She received the award for poetry in the high school category at the Wisconsin Academy's 129th annual conference held in Stevens Point in April.

▶ Robert H. Dott Jr., a native of Tulsa, holds degrees from the University of Michigan and Columbia University. He joined the geology and geophysics faculty at the University of Wisconsin–Madison in 1958 after working in the petroleum industry for five years. He has written extensively about the preglacial geology of Wisconsin, but his research and teaching have also taken him to the Rocky Mountains, Pacific Northwest, southern South America, and Antarctica. Since retiring from teaching in 1994, he has devoted most of his attention to the history of geology.

▶ Nathan Guequierre has lived in Milwaukee for more than a decade. He writes about art for the *Shepherd Express*, the city's weekly newspaper.

▶ Sally Hutchison, Madison, was born in Wisconsin and received her M.F.A. degree in painting from the University of Wisconsin–Madison in 1983. Her work, recently exhibited in galleries in Madison and Milwaukee, was selected for *New American Paintings*, a catalog of juried exhibitions in print, August 1998. She is a former coordinator of the Wisconsin Academy Gallery and a member of Westwing Studios, an artist collective in Verona, Wisconsin.

▶ John Knox is an assistant professor of geography and meteorology at Valparaiso University in Indiana. He holds a bachelor's degree in mathematics from the University of Alabama at Birmingham and a doctorate in atmospheric sciences from the University of Wisconsin–Madison, where he met his wife, former Wisconsin state climatologist Pam Naber Knox. He has written journal articles on atmospheric dynamics, elementary number theory, and geoscience education. "Pentecost 30 June 1993" is his first poem to appear in a widely distributed publication.

▶ Jackie Langetieg edits a newsletter and website for the state Bureau of Substance Abuse Services. Her poems have appeared in editions of the *Wisconsin Poets' Calendar* as well as various journals and anthologies. In April she received an award for poetry at the Wisconsin Academy's 129th annual conference in Stevens Point.

▶ Richard Ezra Probert was on the faculty at Mount Senario College in Ladysmith, Wisconsin, from 1973 to 1979. He has spent more than thirty years as a conductor, vocal-music teacher, and arts administrator at colleges, universities, and professional arts organizations throughout the Midwest and the East. He now lives in Rochester, New York.

▶ Guy Thorvaldsen moved to Madison in 1991 after spending seven years in the Scottish Highlands. The son of Norwegian immigrants, he works as a carpenter, house dad, and writer. His writings have appeared in various magazines and literary journals, both in the United States and in Great Britain. He is studying for an M.F.A. degree in creative writing through Vermont College.

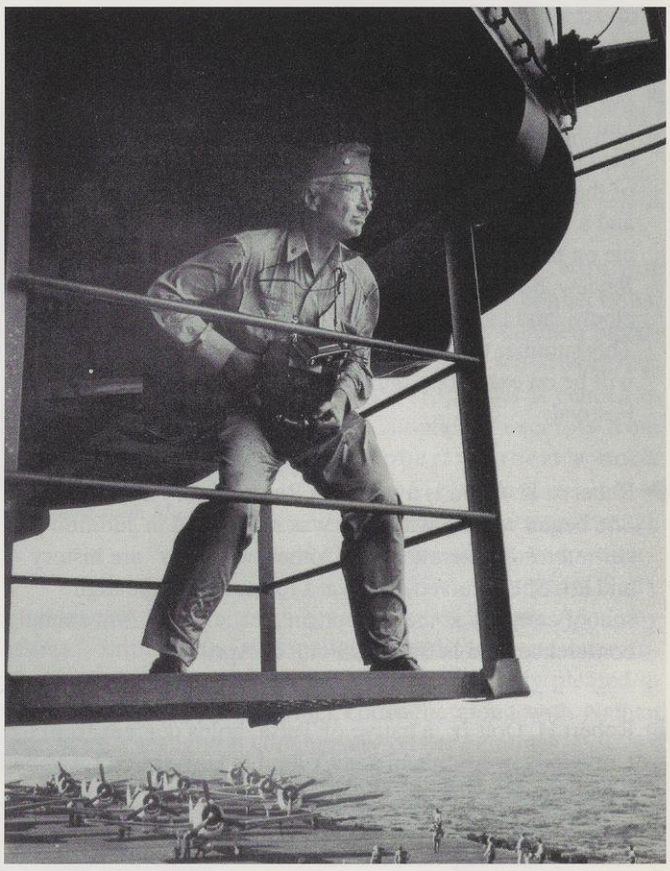
Edward Steichen and World War II

text provided by The Navy Museum

"Don't photograph the war, photograph the man . . . the heartaches, plus the dreams of this guy. Photograph the sailor." With these words Edward Steichen sent the men of his special photographic unit out to document the United States Navy in World War II. At the age of sixty-two, Steichen was awarded a navy commission after the army refused to recall him to active duty. A successful commercial and portrait photographer and highly decorated World War I army veteran, Steichen convinced the navy that he could tell the story of naval aviation.

In addition to simply recording facts, Steichen wanted to prove that photography could be a powerful instrument for showing the human side of complex events. For this reason he assembled a diverse group of six gifted, professional photographers. He insisted that a variety of professional talent could present a balanced viewpoint with images that were strikingly photographic yet understandably human. Steichen personally supervised the printing of his special unit's photos and took an active role himself in the war zone.

Throughout 1942 and 1943 Edward Steichen's special photographic unit operated out of the navy's training literature division. The success of naval aviation soon provided the opportunity for the photographers to follow the new pilots to combat assignments. They traveled on carriers, on submarines, on battleships, and to shore stations around the world. This freedom of movement was possible because Steichen had insisted that all his photographers be commissioned as officers. This status plus open orders allowed them to go where they wanted, recording what the war looked like from the average sailor's point of view. The photographers returned their exposed film for processing to the Washington lab where Steichen inspected every photo, specifying how the images should be cropped and printed.



Victor Jorgensen

Steichen on Lexington, *1943.*

By 1944 the United States had begun to climb the long chain of islands that led directly to Japan. Steichen was on board *Lexington* when it was torpedoed during the battle for the Gilbert and Marshall islands, and he witnessed the invasion of Guam and Iwo Jima. The amphibious invasions of these islands resulted in some of the most savage fighting in the war.

During the last six months of the war Steichen was placed in command of all navy combat photography, and the photography unit increased to 4,000 men. A grateful government awarded him the Distinguished Service Medal. He left the navy in 1945, and in 1947 he became the director of photography at the Museum of Modern Art in New York, where he remained until his eighty-fifth year. He died on March 25, 1973, two days before his ninety-fourth birthday.

Air Plot Room. *A fighter director works with radarmen to control combat fighter patrols during an air strike, 1943.*

These images were part of an exhibition at the Wisconsin Veterans Museum in Madison, January 15 through May 31, 1999. The exhibition, which consisted of sixty photographs, was organized by The Navy Museum and circulated by the Smithsonian Institution Traveling Exhibition Service. We express our appreciation to these organizations and the Wisconsin Veterans Museum—Richard Zeitlin, director, and Bridgitt Zielke, curator of programs—for their assistance.

Because of Edward Steichen's Wisconsin connection, selection of images for this feature was limited to photographs taken by him. All photos courtesy the Navy Historical Foundation and the National Archives.

Selected references:

Dennis Longwell. *Steichen: The Master Prints 1895–1914*. The Museum of Modern Art, 1978.

Penelope Niven. *Steichen: A Biography*. Clarkson, Potter, 1997.

Christopher Phillips. *Steichen at War*. Portland House, 1987.

Helga Sandburg. *A Great and Glorious Romance: The Story of Carl Sandburg and Lilian Steichen*. Harcourt Brace Jovanovich, 1978.

Edward Steichen. *A Life in Photography*. Doubleday, 1963.

Exhaustion. *After more than twenty-four hours at general quarters, enlisted men sleep on the deck of* Lexington, *1943.*

Clear the Deck. *Crewmen struggle to drag a plane with a flat tire off* Lexington*'s flight deck to make way for another plane to land, 1943.*

Takeoff. *A Grumman F6F Hellcat takes off from* Lexington, *1943*.

Victory Tales. *Crewmen listen to a broadcast by the ship's pilots as they describe the air battle with Japanese planes, 1943.*

The Winning Team. *Pilots on* Lexington *celebrate after a successful mission, 1943.*

Lifeless Fingers. *Steichen took this photo of a dead Japanese soldier's hand the day after the capture of Iwo Jima, 1945.*

Small Flower. *The only living thing in sight—a tiny flower—blooms on a desolate hillside of Iwo Jima, 1945. These two photos reflect Edward Steichen's pacifist convictions, later expressed in his monumental worldwide exhibition titled* Family of Man.

Edward J. Steichen: The Early Years, Wisconsin, and Beyond

Edward Steichen was born in Luxembourg on March 27, 1879, and emigrated with his parents in 1880 to Hancock, Michigan, a mining town in the Upper Peninsula. When he was nine his mother sent him to school in Milwaukee, where teachers became aware of his talents. A year later, weary of the rough way of life in Hancock at the turn of the century, the rest of the family followed. They lived on Water Street in Milwaukee and at various addresses on the near north side of the city. Edward's mother set up a millinery shop at North Third and West Walnut streets.

Edward Steichen and his niece Margaret Sandburg, eldest daughter of Carl Sandburg and Lilian Steichen Sandburg, Milwaukee, 1912. Courtesy the late Margaret Sandburg.

In 1894 Edward left school and began a four-year apprenticeship at the Milwaukee Fine Art Company, a lithographic firm, and it was not long before he began his early experiments with a camera. In his autobiography, he tells us: "It was during the year 1895, when I was sixteen, that I became interested in owning a camera and in making photographs." The first photo he developed was of his twelve-year-old sister, Lilian. The image, which is slightly blurred, has the look of a painting; she is dressed in white, her long black hair caught at the nape of her neck. She sits at the fringe-draped piano in the Steichen home, her hands in proper form resting on the keys.

Edward's fascination with photography often took him to the end of the trolley line where he roamed the fields and woods around Milwaukee, creating blurred images of ponds and trees by intentionally moving the camera or putting water on the lens. His photos had the quality of the impressionist paintings of the 1870s and 1880s.

"In 1896 or 1897," Steichen writes, "I got together a small group of fellows about my own age. We were all engaged in professions that had to do with pictures. We rented a small room in an office building and hired a model in order to get some experience drawing from life rather than from pictures." Within a year the group had grown, and they gave themselves a name: The Milwaukee Art Students' League. Steichen was its first president, and the league was the forerunner of the present-day art department at the University of Wisconsin–Milwaukee.

In 1900 Edward left Milwaukee for New York and, eventually, France, and his parents moved to "a dear little white house" near Menomonee Falls. (Today, in spite of development which has crept close, the immediate neighborhood on Pilgrim Road is much as it was when the Steichens lived there.)

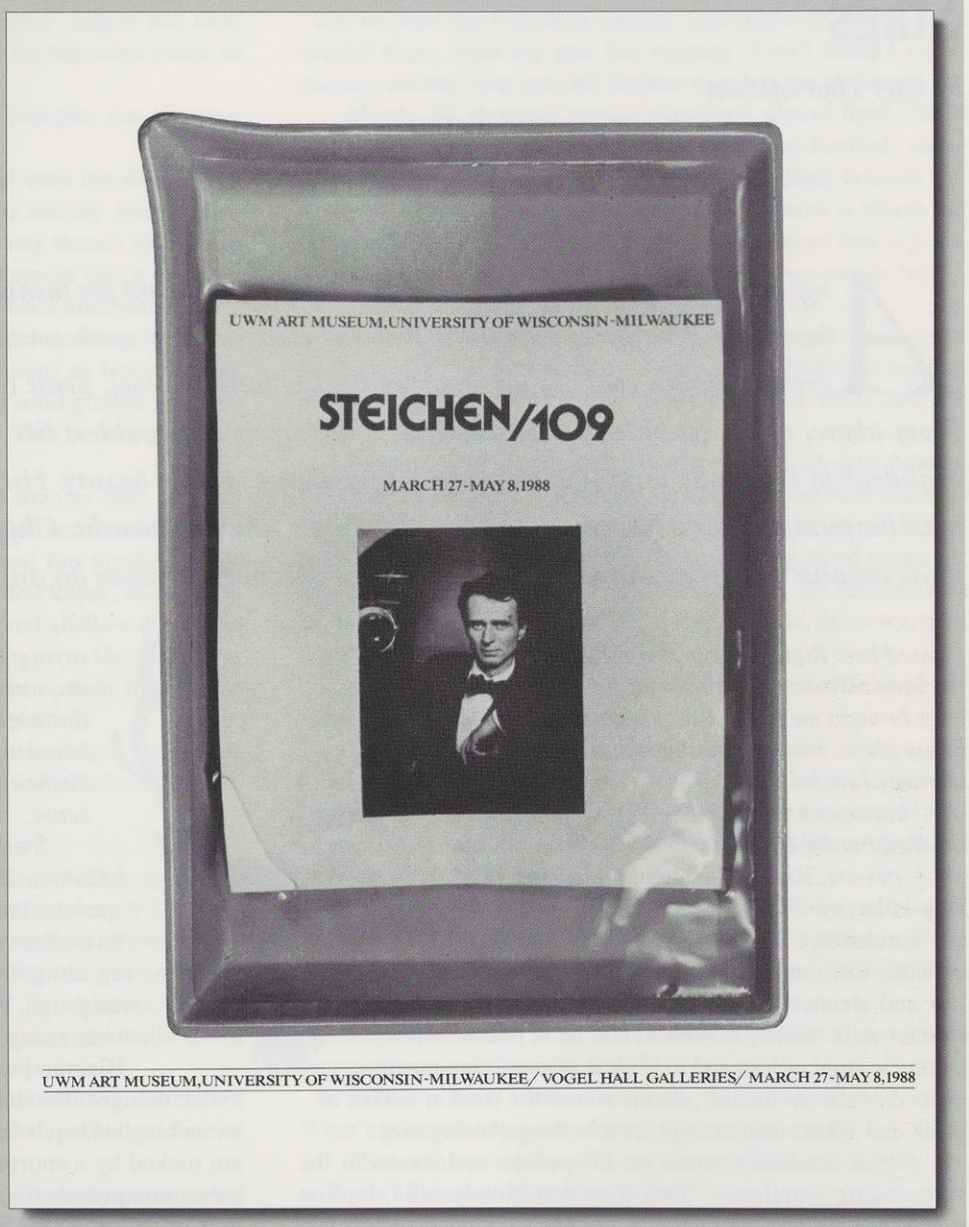
Edward was energized by his adventures in Europe. In 1902 his photograph *The Black Vase* became the first photo to be placed in a national collection of art. It was purchased by the Belgian government and hung in the National Gallery in Brussels. In 1905, back in the United States, he took the photo that remains one of his best known, that of the Flatiron Building in New York. His long and remarkable career had begun.

While in France, he introduced himself to Rodin and photographed the artist and his work. Through his friendship with Gertrude and Leo Stein, he became familiar with the work of such painters as Matisse, Renoir, Cézanne, Picasso, and Brancusi. He was ultimately instrumental in bringing this art

to America by introducing Alfred Steiglitz to the work of some of these painters, thus paving the way for the International Exhibition of Modern Art held at the New York Armory in 1913.

During World War I he served as an army aerial intelligence photographer and was assigned to General Billy Mitchell's command in France. He returned to America after the war and went to work for Condé Nast, and his photos appeared regularly throughout the 1920s and 1930s in *Vogue* and *Vanity Fair*. During this period he was considered the most successful photographer in the world. He photographed Greta Garbo, Charlie Chaplin, John Barrymore, and many other celebrities. His photos for J. Walter Thompson advertising agency promoted Jergens Lotion and Eastman Kodak. His portraits included such subjects as Theodore Roosevelt, Eugene O'Neill, Willa Cather, Winston Churchill, J.P. Morgan, and Franklin Roosevelt.

In the mid–1950s he organized an exhibition of international photos titled "The Family of Man," with the help of his brother-in-law, poet Carl Sandburg, who had married Lilian Steichen in Milwaukee in 1908. The exhibit opened at the Museum of Modern Art in New York and traveled throughout the country and to venues abroad. In 1957, at age seventy-eight, he received an Honorary Doctorate of Fine Arts from the University of Wisconsin. On July 4, 1963, he was awarded the Presidential Medal of Freedom by President John F. Kennedy.



The photo used for this exhibition announcement was a self portrait taken in Milwaukee, circa 1917.

In commemoration of its silver anniversary in the spring of 1988—and in observance of the 109th anniversary of Steichen's birth—the School of Fine Arts at the University of Wisconsin–Milwaukee mounted an exhibition titled "Steichen/109." At that time the campus courtyard between the Fine Arts Center and Mitchell Hall was formally named the Edward J. Steichen Court, in recognition of the "catalytic role" played by the gifted young artist whose early efforts evolved into the university's art department.

Anthony Lane, writing for *The New Yorker* (January 5, 1998), commented that "only Steichen had the skill, and the wit, to redefine the photograph as a kind of miniature monument, a repository of pensive peace."

Faith B. Miracle

Stags

by Guy Thorvaldsen

Angus Dunn pedals his bike up Colmar Hill, negotiating the meandering ruts lacing the single track lane. He is a thick, red-bearded man, clad in blue work overalls, a battered tweed cap, and a creased oilskin coat. To his right and below him, the cool, dense harr *rises up from the Moray First. From above, the forest blue November sky descends upon his shoulders like a cloak. Normally seduced by the grandeur of these hills, Angus is, this evening, insolvent to their beauty. His bike creaks and groans in rhythm with his pumping legs. His mind pushes out between heaving breaths. Clipped thoughts are swallowed by the mute expanse of heather, an indifferent audience that only increases his anger.*

I kissed her! Right there in the mill, her sitting at the loom. Worse yet, she barely flinched! Should have brought me to my senses with a slap, put me in my place. Instead, she looked at me with that contented smile.

"Now what will you do, Angus?" he mutters out loud to the emptying dusk. "Such a big man am I. No car. Riding this creaky old bike. A real lady-killer, aye."

Lochenny Road rises and falls six times between town and Angus's croft. Colmar Hill is the last and steepest of the mounds. From there on it's another mile, mostly downhill, and he is home. A few meters in front of him and to his left, a low-flying magpie veers down from the hill, shoots across the road in a flash of black and white, then disappears into the gathering mist.

Angus resolutely stands on his pedals, and shouts to the surrounding emptiness. "Och aye, you bloody hills, look at grand, old Angus Dunn, riding his creaky old horse to town every day for a seven-pound-an-hour slave job. Look how my lovely welding equipment lays rusting in the field waiting for me to afford a bloody shed. Take wonder at the sight of the independent businessman! Independent my ass. Crock of shite is what that is."

Angus shrinks back down again, falters as his thoughts touch wounds immediate and raw. He retreats to a time earlier that day at the wool mill where he runs one of the major looms. He sees Fiona's fair-skinned face and her mischievous gray eyes. His mouth moistens at the memory of the momentary meeting with her lips, his hands remember the upward curve of her neck, fingers slipped beneath her mane of thick, auburn hair.

Oh, a night with her would do me well, he thinks. He chuckles and bobs his head. *Damn what anyone else says. Of course Maggie's a fine woman, but how long can a man keep saying that—and believing it—-when our bed stays unruffled, damp, and chill straight through the night, and morning wakes me with kids knocking at the door, and a cold stove in the kitchen. Fiona's different. Free of all this nonsense.*

Sweat glistens on his beard as Angus crests Colmar Hill. He eases the pressure on his bike pedals. From here the road ahead drops away into an endless carpet of purple heather. He stops pedaling altogether, settles back on his seat, loosens a weary sigh. But the sigh is cut short, sliced through by a form, rising up in flight from the low side of the road.

His mind registers *deer,* but he cannot react beyond that thought. Two brown furry sticks catch beneath his arms, wrenching his hands from their grip on the handlebars. His ears are rocked by a snorting, plaintive howl. Its white and brown breast compresses his, heaves him sideways like a half-empty sack of barley. There is a lift and flying, a momentary embrace of creature, of rutty smell, of sweat and old forest. Land and sky tilt and chase each other. Angus's feet long for earth, but gravelly ground arrives first at his back, repels the downward thrust of man under deer. A whump of lungs emptying out, his hollow-throated groan, the deer's panicked bark, sounds just as quickly sucked back in as air frantically wedges into compressed lungs. They are sliding, sideways and down. Two sacks of bone and blood and sinew rolling over bracken and stone. Bodies settle and silence rushes in like a wave pulls back to the sea.

Angus's mind empties, his senses race to every corner of the body. But what information they find, they cannot translate. Outside his body, the molecules of atmosphere seem to gather slowly, then align themselves into a surreal image. Not a meter away are two black pools of fear and wildness and instinct.

It is a stag, his substantial antlers lie against the ground, awkwardly twisting his head. Still, neither Angus nor deer moves. Their compressed lungs grapple for the same piece of air.

Move, run, hide, escape. Primitive thoughts run between them like an ancient language.

Five, perhaps ten minutes pass, and then the deer's legs kick out, as if running in his dreams. Its driving hooves narrowly miss Angus's face and groin. The stag throws its head to the side, sends a ripple of twisting movement down its body and, in the same movement, the legs pull back underneath. Like a struggling newborn lamb in the field, its trembling legs push the deer to standing. An unsteady moment as hooves slide against gravel, and then its back feet find solid ground and propel the stag up the hill toward the woods. Two bounds and he is gone.

The deer now away, it is pain that streams into Angus's consciousness. Each breath sends sharp knives into his lungs. *Broken ribs for sure*, he thinks. A bruised hip throbs against cold stone. Slowly he rolls to his hands and knees, stopping at each stage to breathe, the breaths short and shallow. He rocks back to a squatting position and shouts in pain. He shakes his head to clear the dizziness, waits a moment, then rises to his feet. Another sharp cry of distress. More waiting.

Slowly inching his way out of the ditch, Angus locates his bike on the edge of the road, its front rim folded almost in half. He will have to walk, leave his bag.

Get the bike in the morning, he thinks.

He makes his way to the center of the dirt track, and manages a painful, wobbly pirouette. A stuttering search for bearings. A reckoning of his emotional compass. Toward the woods, toward town, toward Fiona, toward home, toward night.

"Too broken now for young Fiona," he whispers. "She'll not want a cripple. And I suppose I'm not ready to lie down here in the road and give it all up. Aye, home it is."

Angus groans with the first step, takes another, downward now, slides his leaden feet along the uneven, packed surface of the lane.

His path is a tentative, weaving trail. His body twists to the left, his left arm held straight down, so as not to disturb his broken ribs, its fist clenched as if holding an invisible rail to steady himself. The right arm swings like a timid pendulum, a counterbalance to this listing ship.

Vision is impossible in the damp canopy of mist that travels with him. Only when his feet brush against the heather does Angus know to adjust his course back onto the road.

Halfway home, he trips on a rock and falls forward. Strikes of pain rip through him as his hands hit the road. He stays a few minutes on all fours until he regains his breath. *A dog. I'm like a bloody dog in the road*. Once again he rises and moves on.

His hair and beard are now soaked, and icy water trickles down his neck. Angus realizes he's left his cap behind, imagines it hanging on the stag's antler as he runs through the woods. He manages a small, rib-jolting, chuckle.

"How many steps to the croft, Angus?" he rasps to himself. "You've done this trip often enough. Sure hope old Walker isn't headed home from the pub this evening. Don't think I could manage another leap into the heather to avoid the old drunk."

Mostly, his thoughts remain contained, almost light. There is an odd, comforting peace about this mist-limited, pain-defined world, like when he was a child huddling beneath the duvet on a chill night. Angus's only question now is where the entrance to his croft might be. And he knows even that is just a matter of time—-or morning's light—-whichever comes first.

An owl's hooting momentarily parts the mist.

"That'll be from the wood up behind the pond," he says to the dark night. "I'm sure of it. Not far now. Should be hearing the brook soon. Then I'll stay to the right and we'll find our way, Angus. Don't you worry."

Twenty more steps and he is at the brook. Angus pauses, senses water running beneath his feet through the steel culvert.

He thinks this must be what it's like to be blind. Going slow, feeling things as they are. He surely was blind today. Or maybe it's now he can truly see the fool he is. He reckons that his broken ribs will give him a nice rest at home, drink tea, read the paper, watch telly.

Aye, that'll be all right. Hang the bloody debt. Let the bank come and try to take the farm.

The short pause at the brook stiffens Angus's bones, and moving again elicits a groan. Minutes later his feet find the entrance to his drive. Angus squints now into the mist to find the lights of his croft. Nothing. Fifty steps and his hand finds the back door latch.

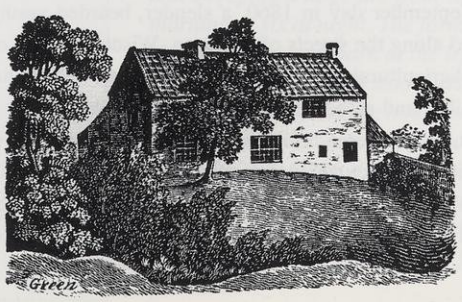
"Angus. Is that you? Where have you been, man?" Maggie's voice comes from upstairs, its sound breaking through the harsh evening like a familiar old song. "Emily's got a cough tonight. Be down in a tick."

Angus hesitates, does not answer, then calls to her. "Will you say that again, dear Maggie?"

"What's that?" she calls back. "I can barely hear you. What's gotten into you, husband? I'll be right down."

"Not a thing, my love," he whispers. "But, come help me, will you? I seem to have lost my way."

Angus leans his weight against the door frame. A delicate line of blood and spittle trickles from the corner of his mouth. His right hand reaches up to comfort his broken ribs. He notices a faint, musky smell lifting about him. He grins. Patiently, he waits for his wife. That, he knows, is sure. ❧



John Muir's Timepieces

by Joseph G. Baier

John Muir spent his boyhood and early youth on his father's farm in Marquette County, just north of Madison, Wisconsin. His was a life of toil, attending to the chores of the farm from early morning to dusk. His father, disdainful of learning beyond the minimum necessities of life, could neither understand nor approve of the curious interests and insatiable craving for learning in his son. He was so strict that young John had to secure special permission to use part of his noontime lunch break and the early morning hours before daybreak to pursue his special interests.

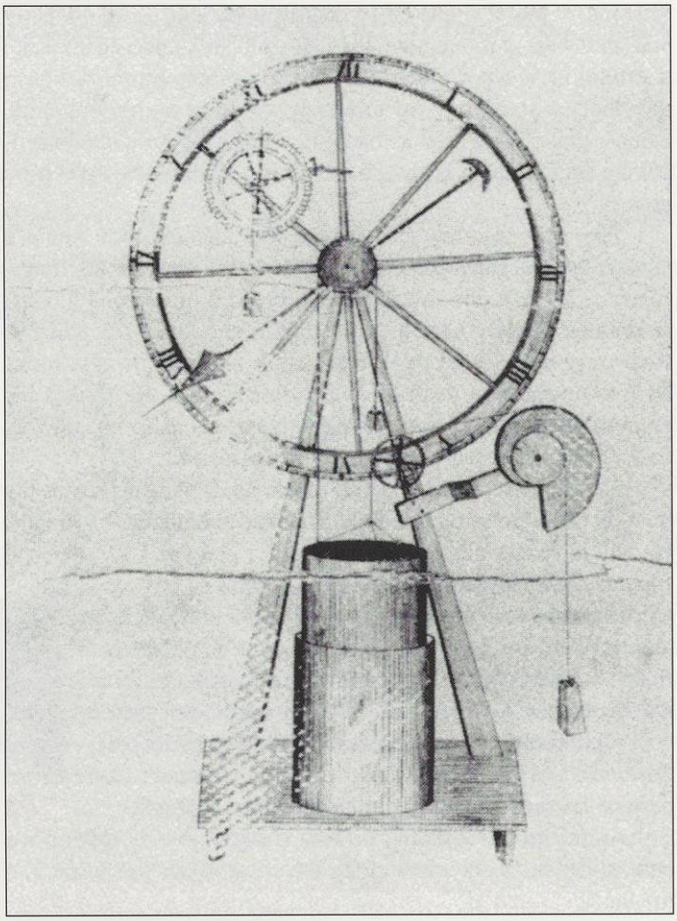
Among these interests was the design and construction of various mechanical contrivances: timepieces, hydrometers, curious door locks and door latches, a barometer, an automatic sawmill, and other elaborate devices. Timepieces with special functions such as igniting the fireplace in the early morning before one arose, lighting a lamp, upsetting a bed to arouse the sleeping culprit to sudden wakefulness, and devices to feed horses were also constructed.

In the local history room of the Milwaukee Public Library there are several news items, circa 1860, that cover young John Muir and his creations. For example, on September 27, 1860, this story appeared in the *Milwaukee Sentinel:*

> An Ingenious Whittler—While at the Fair Grounds this morning, we saw some very ingenious specimens of mechanism in the form of clocks made by John Muir of Marquette County. They were without cases, and were whittled out of pine wood. The wheels moved with beautiful evenness. One registered not only the hours but the minutes, seconds, and days of the month, the other in the shape of a scythe, the wheels being arranged along the part representing the blade. It was hung in a dwarf burr oak very tastefully ornamented with moss about the roots. We will venture to predict that few articles will attract as much attention as these products of Mr. Muir's ingenuity.

In his book *John Muir—Wanderer* (1957), James I. Clark states:

> One September day in 1860, a slender, bearded young farmer trudged along the streets of Madison, Wisconsin, and out to the State Agricultural Fair, on the west side of town. He had things to exhibit, and as he opened his bag to show them to the gatekeeper, he wondered in broad Scotch accents what it would cost to get into the grounds. After a glance at assorted contraptions he couldn't begin to understand, the attendant waved the young man in, and directed him to the Temple of Art.



John Muir's drawing of a water clock. It would appear that initially both buckets are filled with water, the inside one being submerged within the outer or larger bucket. As the inside bucket loses water though a small hole in its base, it gains buoyancy. Through the system of cords and pulleys, the inside bucket rises, thus moving the pointer clockwise to indicate the passing of time.

> Passing through that gate, twenty-two-year-old John Muir left behind a rough, hard life on a Marquette County pioneer farm. He took the first steps along a path that would lead to greatness as an inventor and naturalist, and to lasting fame as an advocate of national parks . . .
>
> By 1860, eleven years of farm life had convinced Muir that he wanted to be an inventor and eventually find work in a machine shop. A neighbor suggested that he exhibit his work at

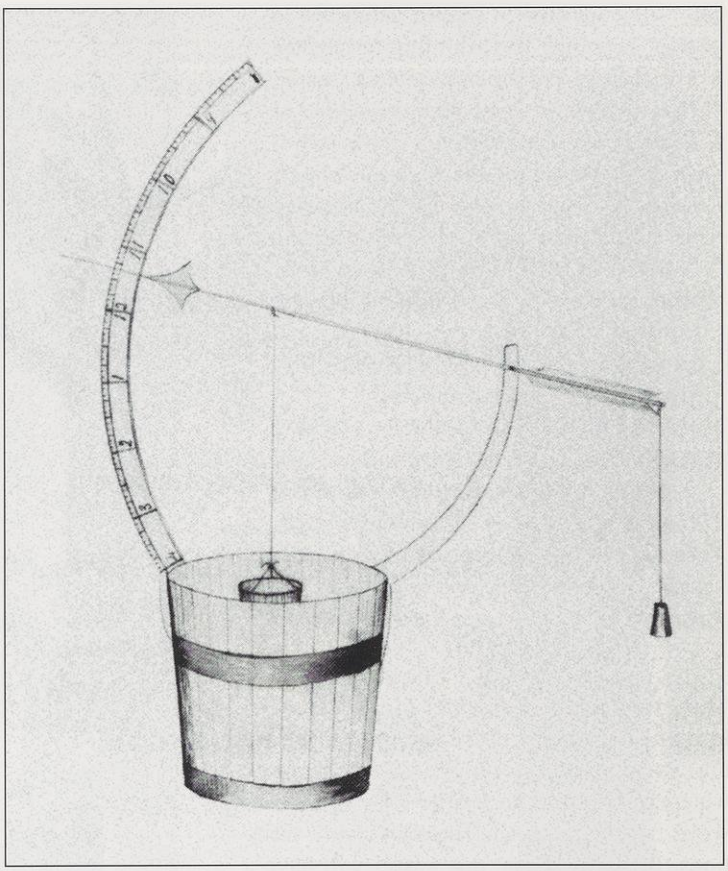
the fair, where he could attract attention and perhaps be offered a job.

Newspaper reporters called the clocks and the thermometer 'prodigies in the art of whittling,' and exclaimed that Muir's inventions were 'surprising and could be executed by genuine genius.'

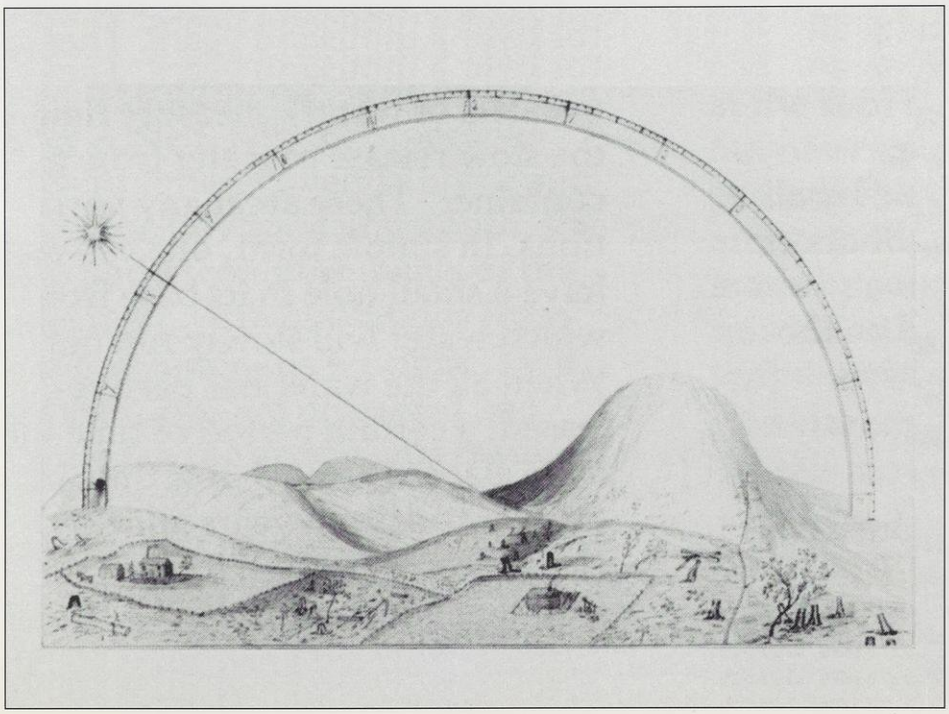
High praise indeed, among exhibits of blooded livestock, a squash that weighed 162 pounds, cornstalks 'the ears of which were fully twelve feet from the ground' and 'beets of prodigious longitude and onions of unheard of diameter.' To say nothing of a cheese that weighed 1,625 pounds and three playful cub-bears from Pierce County.

In Muir's book, *The Story of My Boyhood and Youth* (1913), he explained his "early riser" clock:

> . . . I happened to think it would be a fine thing to make a timekeeper which would tell the day of the week and the day of the month, as well as strike like a common clock and point out the hours; also to have an attachment whereby it could be connected with a bedstead to set me on my feet at any hour in the morning; also to start fires, light lamps, etc. I had learned the time laws of the pendulum from a book, but with this exception I knew nothing of timekeepers, for I had never seen the inside of any sort of clock or watch. After long brooding, the novel clock was at length completed in my mind, and was tried and found to be durable and to work well and look well before I had begun to build it in wood. I finished it in the half hours that we had at noon, hung moraine boulders that had come from the direction of Lake Superior on it for weights, and set it running.



Another water clock designed by Muir operated in reverse fashion to the one previously shown. Here time elapses with the sinking of the smaller bucket into the larger bucket, which is filled with water. At the outset, the smaller, or upper, bucket is empty and rests on the surface of the water. The water seeps through a small hole in the bottom of the upper bucket, which loses buoyancy and slowly sinks. The weighted pointer is drawn counter-clockwise, thus registering the passing of time. In effect, this clock is comparable in its operation to a slowly sinking ship.



Muir's drawing of a "sun" clock, with an indicator that rose and fell with the sun registering time as the radius of a circle and sweeping a large arc from six in the morning to six at night. The farm scene shows a house and barn at the left and a cabin at the right, with smoke rising from the chimneys of both the house and the cabin. A cut-over woodlot and rolling fields and hills (with a pronounced peak to the right) completes the view. This timepiece apparently is a variant of the sundial, except for the position and form of the dial.

But somehow it seemed impossible to stop. Inventing and whittling faster then ever, I made another hickory clock, shaped like a scythe to symbolize the scythe of Father Time. The pendulum is a bunch of arrows symbolizing the flight of time. It hangs on a leafless mossy oak snag showing the effect of time, and on the snath is written, 'All flesh is grass.' Like the first [clock] it indicates the days of the week and month, starts fires and beds at any given hour and minute, and, though made more than fifty years ago, is still a good timekeeper.

My mind is still running on clocks. I invented a big one like a town clock with four dials, with the time figures so large they could be read by all of our immediate neighbors as well as ourselves when at work in the fields, and on the side next to the house the days of the week and month were indicated.

❦

The principle of the water clock has been known for over a thousand years. These clocks, known as clepsydras (stealers of water), measure time by the slow release of water from a container. There are many variations. In simple form, one vessel will have a small hole in its base from which water will slowly run out. When all the water has been released, a certain period of time will have elapsed—-much like the sandglass of today. In years gone by, clepsydras were used to limit the length of a lecture, a debate, a legal argument or trial, or some event of a physical nature, which lead to expressions such as 'time has run out' and 'one has run out of water.'

From reports of his display at the 1860 Wisconsin State Fair, we know that John Muir was capable of fine craftsmanship and ingenuity. His drawings attest to his skill in three-dimensional expression, and his writings reveal his far-reaching vision. From his role in bringing the National Park System into existence, we should be grateful that there were circumstances which reshaped his early life, however ingenious these early creations were. ❧

John Muir's original drawings are in the archives of the State Historical Society of Wisconsin. This text is taken from an article which originally appeared in the Wisconsin Academy Review, *December 1976.*

When we contemplate the whole Globe as one great dewdrop, striped and dotted with islands and continents, flying through space with all the other stars . . . the whole Universe appears as an infinite storm of beauty.

John Muir.

Graham White

Statue of John Muir in Dunbar, Scotland.

A millennium exhibition titled "An Infinite Storm of Beauty: The Life and Achievements of John Muir" will be presented as part of the Edinburgh International Festival in Scotland during August and September 1999. The exhibition, which will be mounted at the Edinburgh City Art Centre, will mark the 150th anniversary of the Muir family's emigration from Scotland to the United States.

The exhibition will celebrate Muir's historic role in conserving America's wild places, influencing environmental legislation, and

shaping an attitude of respect for nature. It will introduce these achievements to many in Britain who are not aware of Muir's contributions.

At the heart of the exhibition is the classic tale of nineteenth-century emigration, of a family in search of opportunity in a young democratic nation where "wide-open spaces were mental and spiritual as well as physical." It is the inspiring story of a boy from humble origins who in 1849 emigrated with his family from Scotland to America and "rode the pioneer trail to a homestead in the Wisconsin wilderness."

Almost a century later, on April 14, 1948, the great Wisconsin wildlife ecologist Aldo Leopold proposed in a letter to Ernest Swift, director of the Wisconsin Conservation Department, that the Muir homesite in Marquette County be purchased and protected as an educational institution. Tragically, Leopold died one week later, on April 21 (Muir's birthday), and apparently no further action was taken until 1957, when acreage adjacent to the original Muir property was designated as the John Muir Memorial County Park. The citation on a granite marker in the park reads:

JOHN MUIR
FOSTER SON OF WISCONSIN

Born in Scotland April 21, 1838

> He came to America as a lad of eleven, spent his 'teen years in hard work clearing the farm across this lake, carving out a home in the wilderness. In the 'sunny woods, overlooking a flowery glacial meadow and a lake rimmed with water lilies,' he found an environment that fanned the fire of his zeal and love for all nature, which, as a man, drove him to study, afoot, alone and unafraid, the forests, mountains and glaciers of the west to become the most rugged, fervent naturalist America has produced, and the father of the national parks of our country.

In 1990 Fountain Lake Farm was recognized as a place of importance "in illustrating and interpreting the heritage of the nation" and was named a National Historic Landmark. This was finally accomplished in great part through the efforts of Erik Brynildson, who now owns the land where the original Muir buildings once stood.

Graham White

For additional information on Muir's homesite in Scotland, activities of the John Muir Trust, and the Edinburgh exhibition, visit these websites:

Dunbar's John Muir Association
www.muir-birthplace.org/

John Muir Trust
www.ma.hw.ac.uk/jmt/

Faith B. Miracle

Shoptalk

Excerpts from Archie's Way: A Memoir of Friendship and Craftsmanship

by Richard Ezra Probert

I survived my first cold snowy year in northern Wisconsin by immersing myself in teaching and performing, and for a small town, Ladysmith had plenty of musical talent to draw upon. But as winter wore on, I felt less and less complete. My withdrawal from hands-on work bothered me. I missed machinists and cabinet-makers, lumbermen and hardware stores. I longed to hear and be involved in shoptalk, that universal language men use when working on projects together. I missed learning new tricks from old craftsmen and making things. I missed seeing something emerge from a plank of wood or a block of steel.

With the arrival of spring—in northern Wisconsin that means late April—I met a man who would help me make things right. Archie Raasch was a seventy-four-year-old machinist whose life revolved around a machine shop that he built behind his house, and an 800-acre tract of woods that he and his friend Harry Pedersen owned twenty-five miles north of town. Archie worked alone. His shop was his domain, his place, his signature. Archie did things his way, with purpose and precision, and he did it in the solitary comfort of his shop. Archie was a private man, mysterious. He was also extremely talented, perhaps even a genius. From the moment I walked into his dimly lit shop and smelled the pungent odor of machine cutting oil, I knew I was in a special place.

❦

I raised my eyes to scan the forty-foot wall that ran along the south side of the shop, which, unlike that of his house, was windowless.

"What's in all of those boxes, Archie?" I asked, referring to hundreds of cigar boxes, tin boxes, wooden boxes, and cans of all sizes that sat on five rows of shelves held to the wall with heavy steel brackets.

"Lots of stuff," Archie replied, appearing delighted that I asked but leaving my question hanging in the air. Feeling more at home, I took the liberty to move ahead and, walking around the little lathe that I had just admired, strolled part way down the wall. I stopped by two beautifully crafted oak chests with carefully fitted finger-jointed corners.

"What 'stuff' are in these?"

Archie came hurriedly up alongside me, protectively separating me from the chests. "These are my special tools." Dropping the front of the box and sliding it under a fitted slot in the bottom of the chest, Archie delicately opened one of the six shallow drawers, his index fingers and thumbs clasping two small brass knobs attached to each side of the drawer front. "Here, take a look," he said, stepping aside with pride.

I had the feeling of looking into a jewelry box. Lined with dark green felt, the drawer was full of small gleaming tools and gauges. Steel scales of various lengths and calibrations shared the drawer with feeler gauges, screw thread pitch gauges, and adjustable depth gauges. One by one, Archie opened and closed each close-fitted drawer, displaying his prized tools. With obvious delight, he showed me various-size micrometers, many sizes and shapes of calipers, dial indicators, telescoping gauges, numerous punches, scribes, and many tools that I could not identify.

Carefully sliding the cover from its pocket at the base of the cabinet, Archie closed and latched the cover over the front of the chest.

❦

Archie handed me a chipping hammer and commanded, "Clean up the weld."

I tapped the new weld to loosen the glassy residue left by the flux of the rod, a job that I had done many times in my

I longed to hear and be involved in shoptalk, that universal language men use when working on projects together.

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youth. Still in the initiation stages, I thought. "You want to give it a try?" he said, after I gave the weld a few final taps with the chipping hammer.

I took the hefty, well-worn electrode holder in my now gloved right hand and brought the rod to the steel, where it stuck fast, causing a deep-throated hum of indignation to come from the old welder. I wiggled the rod to break it from its hold, which it did with the hissing, crackling blue arc of a hundred amps.

"A little early to celebrate the fourth," Archie said, laughing. "Just stroke it lightly, Deek, go easy. Let yourself flow with the weld."

A few more stokes and the melting steel flowed easily. My arm and hand relaxed as the tiny mounds of steel lay down in neat, patterned, overlapping arcs, not unlike the scales of a fish.

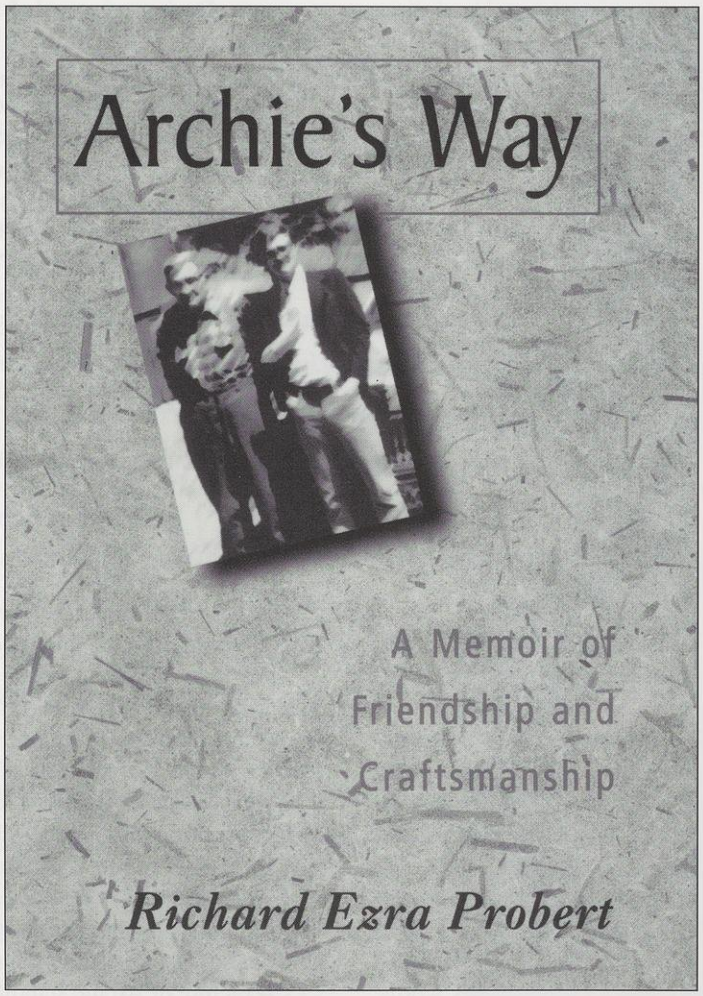
His comment, *Let yourself flow with the weld*, dug as deep into my mind as the weld had in the steel—it was personal as opposed to technical, more artistic than practical.

❦

I made the mile drive home thinking about the day: I had painted a lathe gray and green, ground off some rough edges on pieces of flat steel, had a cup of coffee at the silent counter of the local beanery, and helped Archie weld some steel. The cuticles of my fingers were outlined in black, and even though Archie's hand soap claimed to "leave your hands soft and clean," embedded in my palms was black oily dirt from handling stock steel. A streak of gray paint was on the back side of my right hand. The morning had been well spent.

My visit confirmed what I suspected when I first met Archie only a week earlier: He was a master craftsman, intelligent, witty, and, potentially, a good friend. I was confused over his constant reference to my being a teacher and it troubled me, but I was determined not to let it interfere with what I felt was a growing friendship.

My work with him reawakened a desire to have my own shop, and it was time I got on with it. I thought of my precious woodworking tools, which, hurriedly packed, still lay in their cartons stored in the basement. I heard myself say out loud the word "tools." I turned the word over in my mouth, feeling its soft *t* melding into a clean *oo*, and finished with a lingering *el* topped off with a cool *z*, pronounced, perhaps, as Ella Fitzgerald would with the word jazz. Just as I did when I spontaneously sang out as a child, I let go with the word "tools" on a high note, spinning it out like a triumphant cry.



Too much time had gone by without feeling the energy of those crafting instruments. I now knew it was time to make things whole again and leave behind all the dark days of my first Wisconsin winter. I headed for the basement to unpack my tools, some of which had been with me since childhood.

❦

"Now pick through that pile of cherry and pick out the boards you want. Do you know what you're looking for, Deek, or do I have to do it for you?" Archie's sarcasm returned as it always seemed to after we talked of anything philosophic in nature.

I didn't answer Archie as I dug through the pile picking some and rejecting others. My eyes were looking for solid grain with no checking. When I had the material that I felt I needed, Archie threw in three more boards, "To cover your mistakes," he said.

"Where did you get this wood, Archie?" I asked.

"From up in my woods," he replied proudly.

"What woods, Archie?"

"My woods, Deek. That's where all the wood for the house came from, too. Now, do you have a surface planer in that shop of yours?

"No."

"Well, then, we better get this wood in shape so you can get somewhere with it."

❦

My world of higher education was built on reading, writing, and libraries filled to overflowing. Words were a big part of my

business. The question of how Archie had done all of the things he did—how he amassed technical information, interpreted drawings, kept abreast of new developments, invented, and created, stirred in me. I had enough experience with teaching to know that talent means very little if there isn't a whole lot of determination behind it. Referring to skilled craftsmen, my grandfather would say 90 percent work, 10 percent talent.

I reasoned that what made Archie special was his ability, through practiced and acquired skill, to bring a thought to reality. The most lofty thought in the world dies on the vine if it can't be expressed. It makes little difference whether it's musical thought or machinery thought. What truly matters is being able to express it, having the skill to get it out there, words or no words.

❦

"Look, Archie, I need to know what bothers you so much about my being a teacher. I put every bit as much work into getting my degrees as you did into becoming a machinist. I'd like to get this business between us aside so we can get on with our lives."

Archie was hunched over, as if ready to attack, but clearly something came over him. He pursed his lips and said, "Come into the shop. There's something you need to know."

I followed Archie into the coolness of his gray shop, down the aisle past the familiar lathes and miller to the workbench by the back door.

"You sit there," Archie said, motioning to a four-legged, wooden stool beefed up with twisted wire supports. As I sat, Archie pulled up a sturdy library chair with the golden hue of quartered oak still visible through cracks in its blackened, greasy patina.

Looking me straight in the eye, Archie said without any introduction or apologetic lead, "Plain and simple, Deek, I can't read. Words just don't make any sense to me when they're next to each other. Now, numbers—why that's different. It's words that bother me. I told you from the beginning that I had no time for teachers, they and all their reading. I quit school because of it. They didn't care if I could make and fix things, or work numbers. All they cared about were words. If you couldn't read, that's all there was to it."

I stood up from the stool and walked a step or two out of the yellow cone cast from the porcelain-shaded overhead lamp and looked into the still, muted shadows of the shop. This shop and its machinery, its dusky light and smells of work, was Archie. It was his classroom, studio, university, library, operating room, concert hall, and gallery. He breathed life into cold steel in this place. He cut deals and invented. I was humbled.

❦

I reasoned that what made Archie special was his ability, through practiced and acquired skill, to bring a thought to reality.

Archie remains in my mind as much a part of me as anyone in my life. Whether in my shop or my studio, Archie's presence is with me. A few years ago, for instance, I guest-conducted the Trenton Symphony Orchestra in a performance of Howard Hanson's "The Song of Democracy," which is a setting of two poems by Walt Whitman. During the introduction, Hanson asks for a solo note from the horn that leads to a soft orchestral response. During rehearsal, I led the horn player through her solo measure, then brought in the orchestra as called for in the score. Then I stopped.

The note that the horn sounded had been ethereal, beautifully played, perfectly executed. I felt that I had cut it short. Too much control. Archie zipped through my head. *Let yourself flow with the weld.* Looking at the horn player, I said, "It's up to you, not me." I asked the orchestra to listen to her and to concentrate on that note. "Listen for the moment when it is right for you to respond. Don't count, don't measure, feel." They did, I did, and it was a glorious, artistically honest moment.

Seasoned machinists feel that moment, too. So do experienced furniture makers, welders, sheet metal workers, glaziers—all people who produce with their hands know that moment. They know when to stop, when to yield to physical matter, when the material feels right through the motion of a tool or machine.

Within a fifty-mile radius of most people, there are craftsmen making the finest furniture, machining intricate pieces from blocks of steel, fashioning boxes, lamps, cabinets, model steam engines, and all sorts of gadgets. These are quiet people who judge quality by the way a thing is put together. They have enormous pride in what they do and how they do it, and while age does add a measure of quality to most work, young craftsmen are every bit as dedicated to being exact as their elders. Unfortunately, it is increasingly difficult for young craftsmen to discover and express their talents.

A picture of Archie standing proudly at his lathe has graced my studio or office ever since I left Ladysmith. Perhaps the incongruity of having a machinist displayed among pictures of composers and musicians attracts many to ask, "Is that your father or grandfather?"

"Oh, no," I usually respond, "that's Archie. He was a good friend of mine."❧

Excerpts from Archie's Way *were selected by James A. Gollata, library director at the University of Wisconsin–Richland, Richland Center. Gollata was director of the library at Mount Senario College at Ladysmith during most of Richard Probert's tenure there.*

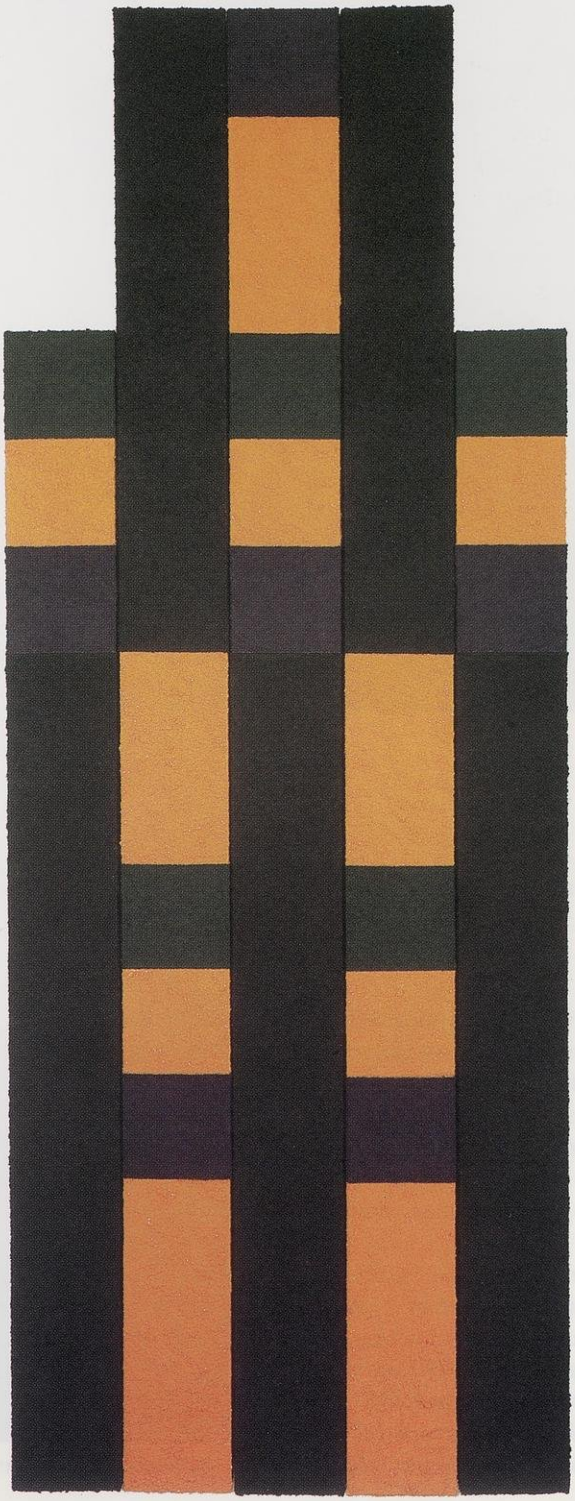
Sally Hutchison in the 1990s: The Power of Suggestion

by Nathan Guequierre

The enormous Temple of Diana at Ephesus, on the Mediterranean coast of Asia Minor, is numbered among the seven wonders of the ancient world, renowned for its perfect proportions, its awe-inspiring grandeur. In a curious instance of the hand of the muse molding the will of the artist, Pliny recounts that the temple's massive keystone was said to be laid by the goddess to whom the structure was dedicated: When the architect had given up in despair of ever raising the rock to its rightful place and was contemplating suicide, Diana appeared in a dream, telling him to put evil thoughts aside, for she had set the stone with her own divine hands. He awoke, ran to the building site, and found the enormous rock spanning the temple's entrance (Thomas).

The Temple of Diana was, perhaps, the ultimate expression of classical architecture and the ultimate expression of mathematics harnessed in the service of art. According to the historian's account, it took 120 years to build, covered acres of land, and was supported by 127 towering columns. The crisp and unencumbered theories of mathematics found their great physical expression in the geometry of classical architecture. Pythagorean begat Palladian.

Divine intervention may be the only means of explaining the mathematical perfection of the temple, if the abstractions of geometry are the best means of explaining the abstractions of nature, the closest that



Gregory R. Staley

Cruciform Series VI. *Acrylic on canvas, 52 x 20 x 1 1/2 inches, 1991.*

Rick Trummer

Aperture II. *Oil on canvas, 56 x 39 x 2½ inches, 1995.*

tiny human beings get to God. As the Ephesians wandered the temple's corridors and chambers, they were confronted with right angles made real and columns rising in perfect perpendicularity. A2+B2=C2. Visitors to the temple may not have understood its source, but they were made giddy with sublime delight, with pulse-increasing goodwill, as they inhaled the thin air of pure math.

❦

While classical architecture may be its most awe-inspiring expression, geometry and art are inextricably intertwined—from the spirals painted on cave walls to quilt patterns—and the effects of mathematics on art have been experienced in countless ways on countless occasions on a smaller, less boggling scale. Madison painter Sally Hutchison is a geometric abstractionist. She makes quiet, unobtrusive paintings—nearly the subtlest imaginable. Almost merging with their backgrounds, with the walls on which they hang, her beige geometries barely whisper their presence, the first warmish southwest breeze of spring at the end of a long winter; there is no power, yet, to cast winter out. But there is a hinted knowledge that winters, too, must end. And though it may not be at first apparent, as were the works of the architects and sculptors of antiquity, Hutchison's paintings may be based on pure math, but they err on the side of humanity.

Angela Webster

Goddess I. *Oil on canvas, 58 x 50 x 2 1/2 inches, 1996.*

Hutchison calls geometric and pattern art an "invented" art. And it is invented in the sense that it abstracts nature rather than mimics it, generalizing the basic forms that inform the natural world into their simplest, perhaps universal, reductions. Geometric art springs from the mind of the artist and lets the weight of the associations it conjures, the images at which it hints, fall the more heavily on the shoulders of the viewer. Because it deals with a vocabulary of shape that is recognizable and understood, but which represents nothing in real space or real time, geometric abstraction opens doors to association.

Like a serialized novel, Sally Hutchison's paintings unfold through time, each phase an installment from which, slowly and with accumulated weight, emerges a story. Over the last decade, she has explored each shape in the vocabulary of plane geometry—rectangles, triangles, circles and their segments—pried into their interior lives, let each tiny revelation spawn the next and be incorporated into it. She approaches each substructure of planar geometry like an old house to be explored. What small secrets, what worn-out stories lie hidden in its disused rooms and dusty closets? The real question the paintings ask is this: In what oblique fashion do these shapes—once pure concept and now handled, manipulated, folded, and spindled—bump up against the ways in which we live our days?

❦

By the 1980s Sally Hutchison's exploration in geometric abstraction and pattern art had evolved to focus on the concern that occupies her now, at the end of the century: reclaiming the humanity of architectonic space, a humanity rooted in classical architecture and sculpture. Making geometric abstractions that refuse to fertilize the kernel of misanthrope that is at the heart of the style, Hutchison is proving that geometry itself is a form of human—not divine—expression.

In the last ten years, the project has come to fruition with a quiet force. At first, canvas blocks painted to mimic textile patterns were arranged on a grid. Then the grid became the focus, in multi-canvas paintings, like vertical columns of color screwed together, divided into blocks. Hutchison soon jettisoned the structural conceit of separate canvases screwed together for an "illusionary" structure that mimicked it. Then

Angela Webster

Goddess IV. *Oil on canvas, 58 x 50 x 2 ½ inches, 1997.*

she painted vertical blocks of color. Then she incorporated oblique lines. Then circles, nearly whole; and now parts of circles, arcs cobbled together into simplified forms like human-proportioned figures.

In the columnar paintings from the beginning of the 1990s, Hutchison's reference is primarily architectural. They suggest extremely simplified models of modernist skyscrapers—like Georgia O'Keeffe's Manhattan skyline—built out of a child's wooden blocks. But the chinks in the cool rationality of the grid are already starting to show, hairline fractures in the chilly perfection of Mondrian's squares of primary colors.

There is, at the beginning of the decade, a hint of the synthesis around which the paintings would come to revolve: the combination of the "pure" elements of abstraction and geometry with what, for lack of a better term, may be called the "humanistic" concerns of representation, that part of the visual arts which connects the viewer to the artist and to the history of human endeavor. Through their scale and proportionality—the paintings are human-sized, human-scaled—through colors that are particularly unrigorous, through inviting and heavily worked surfaces and the simple fact of the paintings' constructedness, Hutchison was eventually able to make the synthesis seem a natural one, even an easy one.

In the paintings that followed, composed of truncated triangles, Hutchison cast off the overt grid "cruciform" works, pushing the structure further into the background to focus on the surface of the paintings themselves, to focus on the thin layer of space occupied by the actual paint as discrete from the stretched canvas, and the associations of architecture. She also dispensed with the brightish colors of those earlier paintings in favor of subtle, muddy, dullish tones that continue to occupy her. That her beiges and grays are less certain of themselves (and more human in that lack of apparent self-assuredness) than the clean colors often associated with geometric abstraction is clear, but they are also closer to the earth, to the tones of soil and clay and stone, and thereby help reinforce the paintings' architectural associations. Like all of Hutchison's art (and abstract art in general), a piece like *Aperture II* welcomes the viewer's associations. It may suggest a road running straight across the prairie to a horizon, it may suggest a column tapering toward its pediment in the crepuscular space of a dimly lighted temple. But its concrete colors suggest first, the human-made, built environment. Second, the central form's proportions, far from the arbitrary perfection of the square, suggest nothing as much as the forms of classical architecture, geometry bent to the service of humankind.

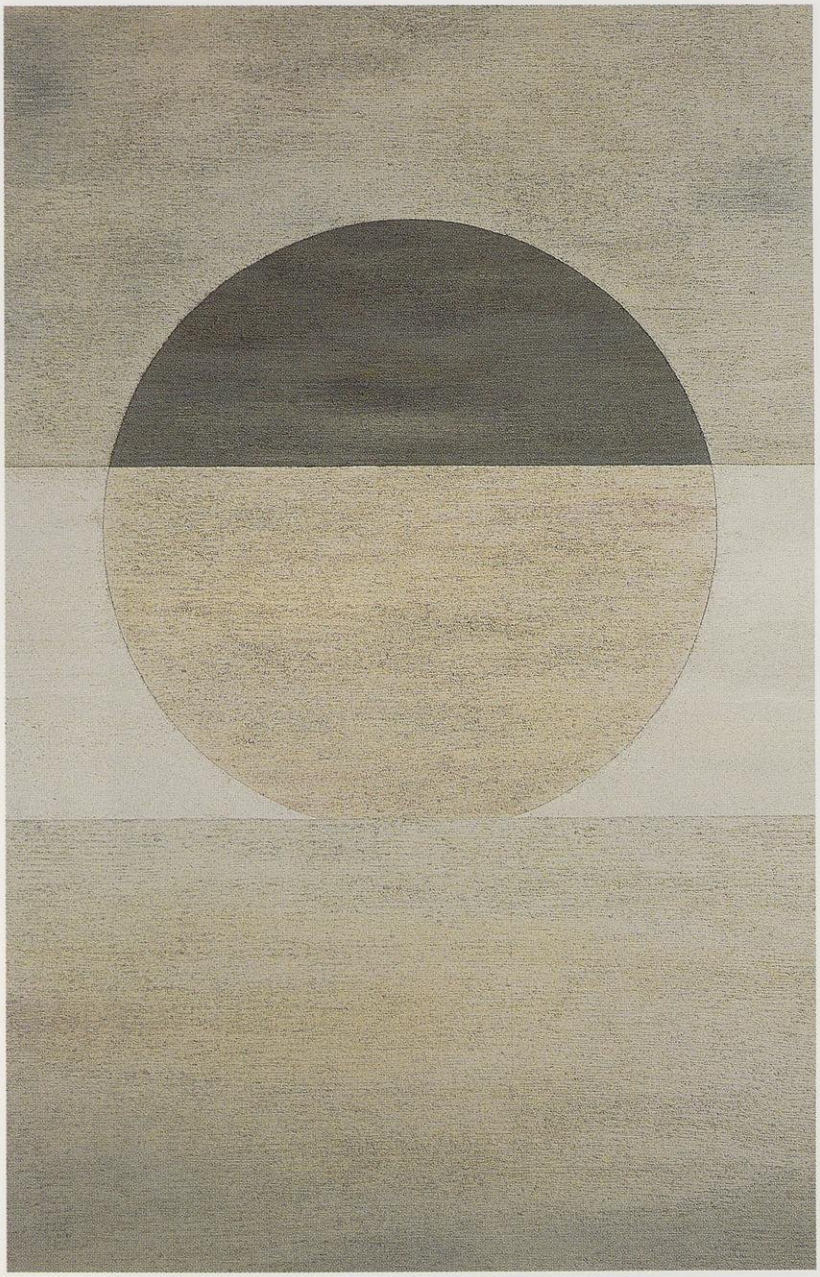
In what oblique fashion do these shapes—once pure concept and now handled, manipulated, folded, and spindled—bump up against the ways in which we live our days?

From these oblique lines in two-dimensional space, Hutchison began combining the truncated triangles with rectangles, moving inexorably closer to an explicit expression of the classical antecedents that hover behind her paintings, placing the resulting geometric forms in a decidedly architectural space, as figures in a niche or the painted scrim on a stage set for a production of Goethe's *Iphegenia in Tauris*. Now the titles of the works give away an idea that the artist no longer conceives her paintings in purely conceptual terms, as mere abstractions.

Angela Webster

Homage to Newton. *Oil on canvas, 60 x 45 x 2 ½ inches, 1998.*

Angela Webster



Revering Galileo. *Oil on canvas, 60 x 37 x 2 ½ inches, 1998.*

Referring to the figures as "urns" and "temples," Hutchison cracks open, slightly, the door to revelation.

Hutchison, in the mid–1990s, makes it clear that the tension between representative and abstract art is no tension at all, that they are two sides of the same coin. In *Goddess I* and *Goddess IV*, Hutchison works with the same limited vocabulary of geometric shapes on the picture plane and muted palette as before. The forms, again, are set in a two-dimensional space that suggests the architectural niche, and again they terminate beneath an implied pediment, but now their proportions are decidedly human, and they hint at caryatids, columns disguised as stone figures, charged with holding the roof aloft. And so Hutchison enters the house of visual metaphor from the back door, giving back to geometric abstraction its own source material.

Hutchison often shies away from her impulses. The *Goddess* paintings are fraught with an implied three-dimensionality; and yet, true to her abstractionist roots, the artist is careful to consciously avoid any overt illusion of space. "I don't trust my motives for making artistic decisions," Sally Hutchison has said. And indeed, the next set of paintings, made during 1998, wrought a great change in her ongoing exploration of architectural space and classical forms, as she veered away from her apparent course. Incorporating curvilinear elements—regular arcs—the paintings refer to landscape and horizon, rather than interiors. Even with these, Hutchison refuses to commit wholeheartedly to the frigid principles of geometric abstraction. Her circles rest on their bases, appearing as slightly deflated balls in their implied landscapes, and the hard perfection of geometry is thwarted by human unwillingness. The titles (*Homage to Newton*, *Revering Galileo*) touch on astronomy, a realm in which mathematics collides directly with imagination. But even the ideal globes of the planets are not, of course, perfect, the sheer force of their spinning in space distorting the geometry and elongating the sphere.

Hutchison now has returned from this detour, however, with an enriched vocabulary of form. In her newest paintings, semicircles and fragmented parts of circles are stacked around a central vertical axis. The resulting forms, once again tucked into a manufactured space, a hollow like a niche, suggest nothing as much as they do vessels, ceramic urns and pitchers (they are called "chalices"), as well as classical sculpture that has lost its limbs through the ages, an armless torso of an unknown athlete or god. The perfection of pure math is itself subject to the same frailties as people, to the withering effects of time. The rough places are made plain, the hard edges are dulled, and what once was truth becomes the myth of its own truthfulness.

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Mathematics, Descartes revealed, is the one pure science, the one true art. Numbers exist in their wholeness, in their perfection, whether or not people do. Geometry is not unruly; geometry exists without having to be verified by the senses. But, although claiming the precedent of the intoxicating purities of

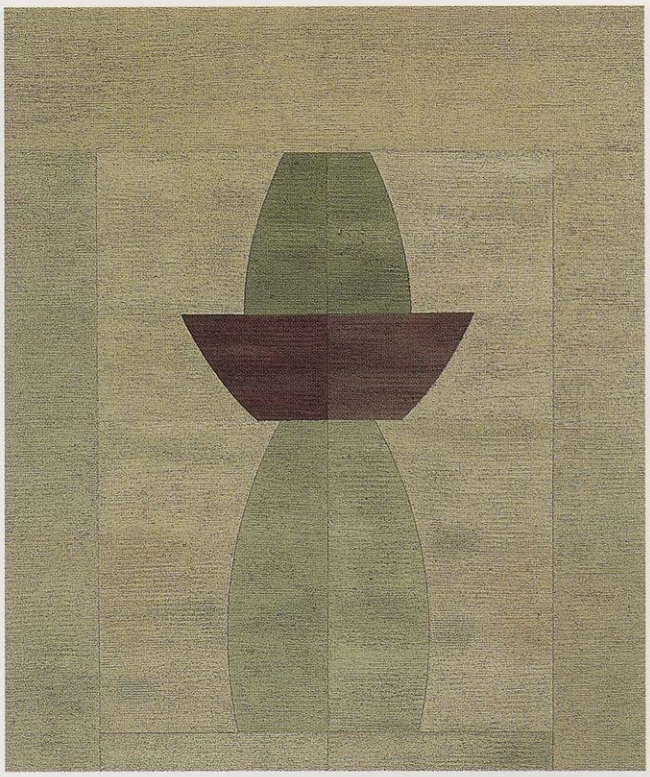
abstracted perfection, in truth, classical architecture and classical proportions are based on human proportions, on ratios that make sense for habitation, even while not limiting grandeur.

Sally Hutchison grasps this fact. Math is not divorced from living, so why should mathematical art be divorced from it? And so the leap from architecture to human figure is not a difficult one. With Hutchison's paintings, however, the figures suggested do not appear to be those of real people, but rather those of idealized classical sculpture, in which torsos are stretched, limbs lengthened, and perfection perfected.

And yet this geometric perfection, too, is illusory, and with good reason. The only thing duller than a perfect circle is the idea of that circle. Hutchison, in her way, is afraid of the hard perfection of geometry, and she solves the potential problem of that overwhelming hardness in several ways. First, the forms are allowed to look as though they were made by human hands, not descended from heaven. She knows the impracticality of building useful forms of pure geometry, as did her antecedents in classical architecture and sculpture. The 127 towering columns in the Temple of Diana at Ephesus were, of course, not true, not cylindrical; they tapered toward the top to give the illusion of being light on their bases, to give the illusion of perfection when taking foreshortened perspective into account. Though they were based on pure geometry, they forsook purity for effect, erring on the side of humanity, calculated to inspire grandiose response. So even as classical columns are, in fact, not columnar and figurative sculpture not proportional, so Hutchison alters the principles of geometric abstraction to make her paintings lighter on the soul.

A line in space has no width, no mass, is infinitely fine, is always divisible by half. Hutchison ignores the ideals of an earlier geometric abstraction—the removal of the artist to the deep background—in the touch she applies to her paintings. She applies herself with vigor to the paintings' surfaces, that thin layer of pigment that holds the results of human endeavor. The lines that delimit her forms, though created with protractor and triangle, straightedge and pinprick, are incised into the paint surface by human hands. Their hardness is mollified by an intense human touch. Hutchison attacks those lines with the vigor and precision of a miniaturist. She builds their edges, the set of continuous points at which two or more abstract shapes meet, with a tiny paintbrush into a tiny mountainscape, like a relief map seen from a great distance. The edges rise as they come together, erupt off the picture plane, destroying that plane's integrity.

The surfaces of Hutchison's paintings are where all their action takes place. Agitated and active—and in a sort of contradictory coexistence with the glacial stability of the rectangles and truncated triangles and dulled-down color schemes—the paintings seem to occupy some space above the flat plane of the canvas. A built-up paint surface, a granular texture, and the space-swallowing hollows carved out of

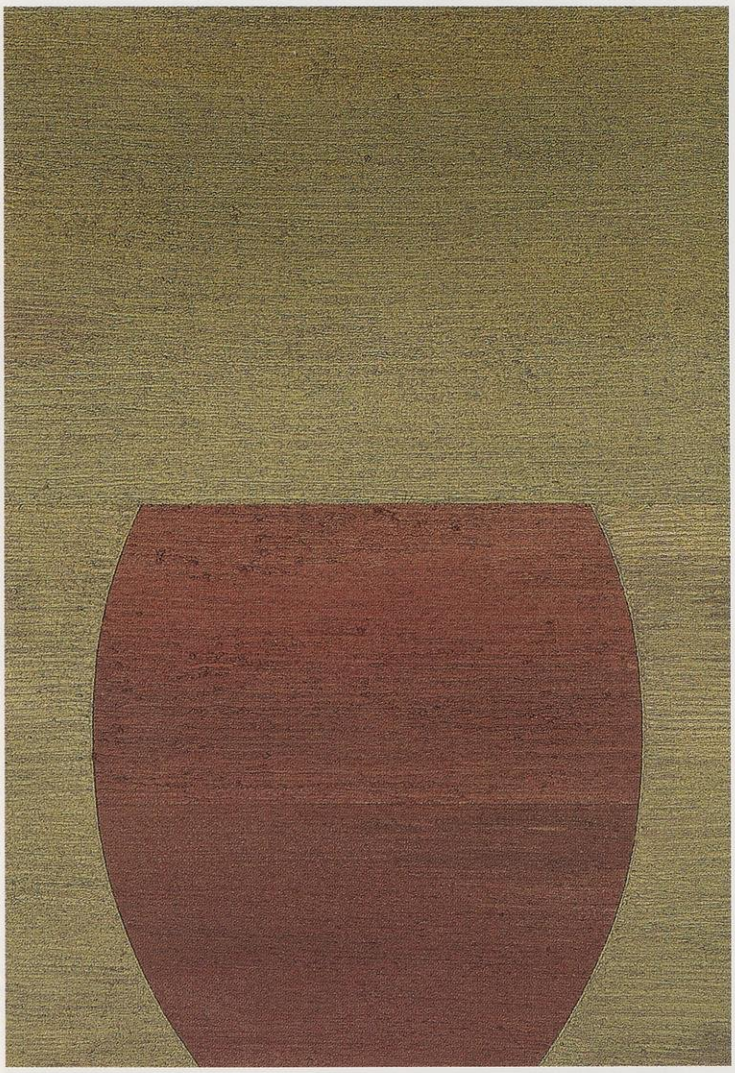


Angela Webster

Still Life: Chalice. *Oil on canvas, 45 x 38 x 2 ¼ inches, 1998.*

Angela Webster

Still Life: Font. *Oil on canvas, 45 x 38 x 2 ¼ inches, 1999.*



Angela Webster

Still Life: Beaker. *Oil on canvas, 20 x 14 x 2 inches, 1999.*

the surface itself when the artist drags a comb across to create furrows like a plowed field, all these combine to lend an air of excitement, of human action, and the energy of good intentions to the stately quietude of the geometry.

Similarly, Hutchison's sense of color is undeniably human, undeniably fallible and impure. The paintings' colors, dimmed down, become as illusory as their structures. Her ghostly beiges and browns, her grays and faded mossy greens, are the barest murmurs of color. These paintings, with motives contrary to geometric abstraction, shy away from mere blatant, unadulterated objectness. The hues are subject to minute and subtle modulation, with patches of pink and yellow hovering like a haze behind the dull tones, like the hints of color that vaguely modify an overcast sky.

The Temple of Diana at Ephesus, like all great buildings, was great precisely because it was inhabitable, because its architects kept human needs at the forefront of concerns, because it was inspiring, without dehumanizing coldness. This is accomplished—even in neoclassical buildings—but with assurance that mathematics remain in the service of art, not vice versa. Sally Hutchison's paintings are powerful because they slyly, gently tamper with expectation. The resonant hum of classical art and architecture pervades her paintings with all its glorious baggage. And that, combined with their hyperactive (but not uncontrolled) surfaces and wistful colors manages to fully confound the less-than-inviting implications of geometric abstraction. Viewers are required to get close to the paintings, to become intimate with them in ways that geometric abstraction of the mid-century forbade. Get close enough, and the geometry all but disappears. The stability it lends the paintings disappears, and what remains is the present energy of the artist. Hutchison refuses to give anything away, beyond the occasional oblique reference in a title. Her paintings make an effort to avoid presenting too much information. She implies three-dimensionality, with subtle tonal gradations and the active color surfaces of her paintings, but she always pulls back. That isn't really a column she's painted, just the suggestion of a column. Those forms don't make a figure, but they hint at one.

The paintings balance directly on the narrow fulcrum of suggestion, without which power they would be beige rectangles, and not the wonderful secrets that they prove to be.

And those are secrets uttered in the dim half-light about the limits of human endeavor, and the tendency human beings have to ignore those limits when attempting to forge a place for themselves in a chilly universe. Dancing as they do between a desire for stability, for solidness and peace, and an almost unnerving energy, Hutchison's art can mitigate, in the face of all evidence to the contrary, the overwhelming conviction that each of us is alone in an expanding universe. In that way, Sally Hutchison's geometric abstractions, like the architecture of the classical world, may represent the best sort of thing that art can be, connecting intellect to emotion, history to hope.❧

Sources:

1. Lowell Thomas. *Seven Wonders of the World.* Garden City, N.Y.: Hanover House, 1956, pages 16–18.

2. Conversation with the artist, February 1999.

3. Stephen Westfall, "Sally Hutchison: Paintings from the Cruciform Series." Reading, Pa.: Freedman Gallery, Albright College, 1991.

The Wisconsin School of Geology: Early Intellectual Exports

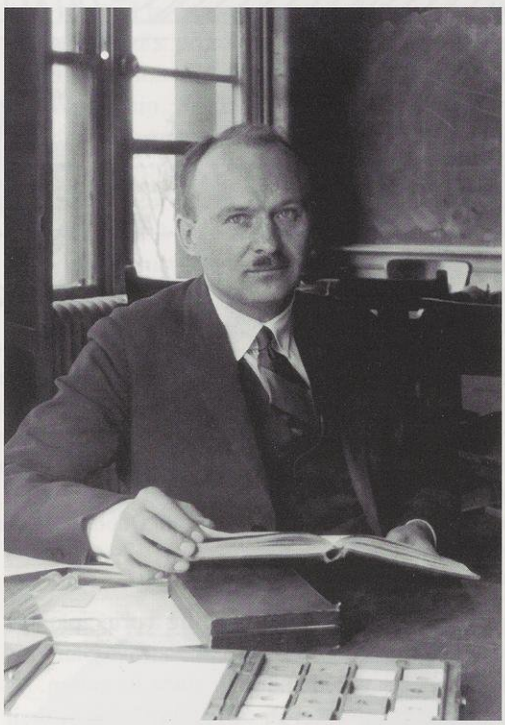
Robert H. Dott Jr.

Innocent Badgers Abroad

It is the summer of 1924. Two twenty-three-year-old University of Wisconsin graduates, together with a thirty-six-year-old Norwegian geologist, are examining complexly deformed ancient rocks in the Scottish Highlands. The locality is Ballachulish, a tiny Scottish village twelve miles southwest of Fort William along the south side of Loch Linne, just north of the mouth of famed Glen Coe, where Campbells massacred McDonalds in 1692.

This area was well known among European geologists because of the particularly confusing structure of crumpled strata exposed there. It had already become one of several geological meccas in the Highlands, which is exactly why the Norwegian, Thorolf Vogt, chose to come here. But how is it that two enthusiastic young men from across the Atlantic were in tow? As we shall see, these two youngsters were showing their older friend why the rock sequence had been misinterpreted and in fact was entirely upside down!

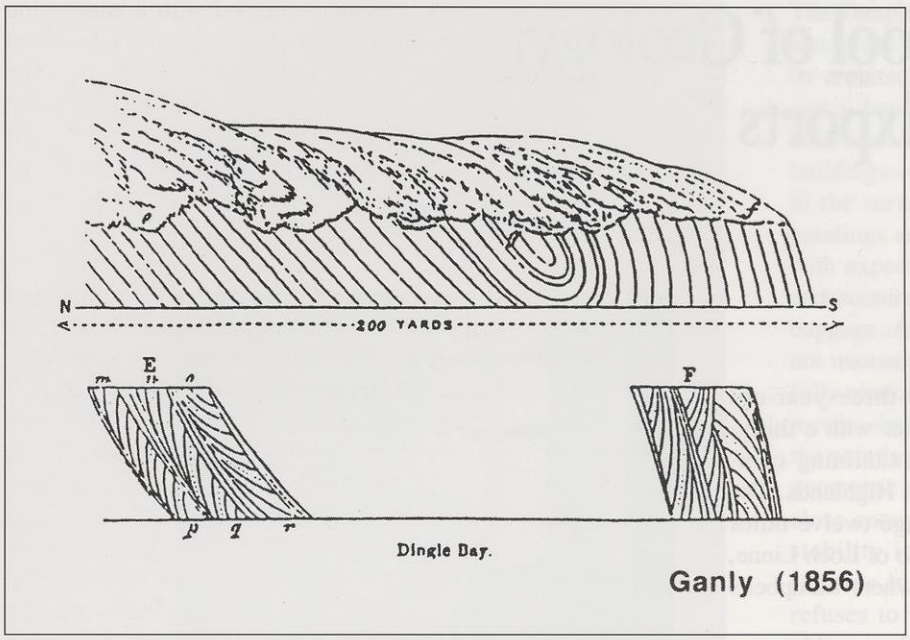
Our two neophyte Badger geologists were Sherwood Buckstaff, son of an Oshkosh coffin manufacturer, and Olaf Rove, a Milwaukeean of Norwegian descent. Both had graduated with B.S. degrees in engineering in 1922. They had studied mining engineering and geology; and for post-graduate work, both chose to specialize in mining geology. Buckstaff completed his M.S. degree in 1923, but Rove did not earn his until 1925, because he took time to travel and study in Norway—his thesis topic was a study of Norwegian clay minerals. A fellowship from the American Scandinavian Society had made it possible for Rove to spend the 1923–24 year at the Mineralogical Museum at Oslo; and Buckstaff, desiring to see some of the world, had joined his friend for that summer of 1924.



Olaf N. Rove. From Outcrop, *1926. Courtesy the University of Wisconsin–Madison Archives.*

Sherwood Buckstaff. From Outcrop, *1922, the annual yearbook prepared by the Geology Club of the Department of Geology. Courtesy the University of Wisconsin–Madison Archives.*

Vogt, who spent most of his career studying the ancient mountains of western Norway and their ore deposits, wished to see the extension of those mountains across northern Great Britain and had consulted British geologists for suggestions of key places to visit. Apparently he had befriended Rove during the latter's stay at Oslo, and so it was natural that Vogt would invite him and his visiting friend to come along to Scotland. Little did Vogt know that these two young men would teach him an important thing or two about a geological principle that was old hat back in Wisconsin.



The geometry of cross bedding reveals the original "way up" in deformed strata. Because the cross laminations are truncated by overlying (younger) layers, their appearance is uniquely different on either side of the downfold (or syncline) shown here from exposures at Dingle Bay, Ireland. The strata on the left side of the fold are right side up, whereas these same strata on the right side have been tilted past the vertical (overturned), as is also the case at Ballachulish in Scotland. From Journal of the Geological Society of Dublin *by P. Ganly, 1856.*

In reality, however, they were reintroducing a principle that had been recognized by an obscure Irishman, Patrick Ganly, in 1856, but which had been ignored and long since forgotten. As sediments are deposited from water or air, gravity causes their particles to settle in horizontal layers; and, in a succession of such layers, the oldest will lie at the bottom with successively younger ones above it. It follows that if today we find layers of ancient sedimentary rocks tilted or contorted, as they are at Ballachulish, we know at once that they have experienced some profound geological disturbance.

What Rove and Buckstaff demonstrated was that a particular type of stratification or bedding (an old quarrymen's term for layering) in sandstones at Ballachulish indicated that the entire succession of strata was upside down. The clue for their deduction was a feature called cross bedding, so named because its inclined laminations are crosswise with the master bedding—it is also called current stratification because of its mode of deposition. Several other features may provide clues for the original "way up" in deformed sedimentary rocks, but only cross bedding was employed at Ballachulish.

It may seem mysterious if not incredible that rocks could be flipped completely over like flapjacks; but in mountain belts, the compression and folding of rocks has commonly resulted in such overturning of strata. Crumpling and inversion of this sort occurs especially where two continents have collided, as in the Appalachian Mountains, the Alps, and the Himalayas. The accompanying diagram illustrates the geometric relationship of cross bedding to crumpled or folded strata.

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To understand how cross bedding can provide the "way-up" clue, we need to understand how this stratification is formed in the first place. The inclined layers are deposited within migrating dunes or ripples formed by either water or wind currents. As a dune migrates down current, grains of sand are eroded from the up-current side and deposited on the opposite, down-current or lee face (see page 31). Some grains roll and tumble over the crest of the dune while others, which were lifted up into the flow, fall on the lee face where the speed of the flow decreases slightly.

> As the dune migrates down current, the sloping lee surface becomes buried by new grains. Small pulsations of current cause subtle differences of the sizes and shapes of grains being deposited from one instant to another. Those differences are reflected by the inclined or "cross" laminations that we see. Thus a set of such inclined laminae represents a succession of fossil lee faces of a dune.

The best examples in Wisconsin are clearly displayed in the walls of the Dells of the Wisconsin River within wind dune deposits about 520 million years old. Close examination shows that each inclined lamination tapers and flattens to become tangential to the bottom of the stratum, but the top side is sharply angular because of the continual erosion of the dune crest, which supplies grains for leeside deposition. As a result, the truncated tops of cross laminae look uniquely different from their bottoms (see page 32). A sharp eye can distinguish original top from bottom even in overturned strata and so tell which way was originally up.

The simple yet profound criterion of "way up" demonstrated by our Wisconsin geologists to Thorolf Vogt in 1924 provided the necessary clue for finally interpreting correctly the complex structure of the Ballachulish area. Vogt excitedly conveyed this new insight to the distinguished Scottish geologist Edward B. Bailey, who had mapped the area fifteen years earlier, but who had been uncertain about the correctness of his interpretation of the rock succession.

Bailey was skeptical of this new criterion, however. Indeed, not until he was invited by an irrepressible professor, Richard Field, to accompany a Princeton University summer field trip spanning 4,000 miles across Canada in 1927 did he begin to

accept the merit of cross bedding for determining original "way up." On that trip, another Wisconsin graduate, T.L. Tanton (Ph.D. 1915), by then a member of the Geological Survey of Canada, worked to educate Bailey, but the conversion was not completed until 1929 when Tanton accompanied the Princeton group to Scotland. At Ballachulish he convinced Bailey that the observations made by the two young fellow Badgers in 1924 had been correct, and the sequence indeed was inverted.

In 1930 Bailey enlisted Vogt and Tanton to join him in writing three companion articles, which collectively highlighted the importance of depositional features in sandstones for determining original "way up" in the deformed strata of mountain ranges of any age, as well as at Ballachulish. Bailey's article (together with another he published in 1936) became a classic because of his recognition of two different classes of sandstones that distinguish two fundamentally different realms of the earth's crust.

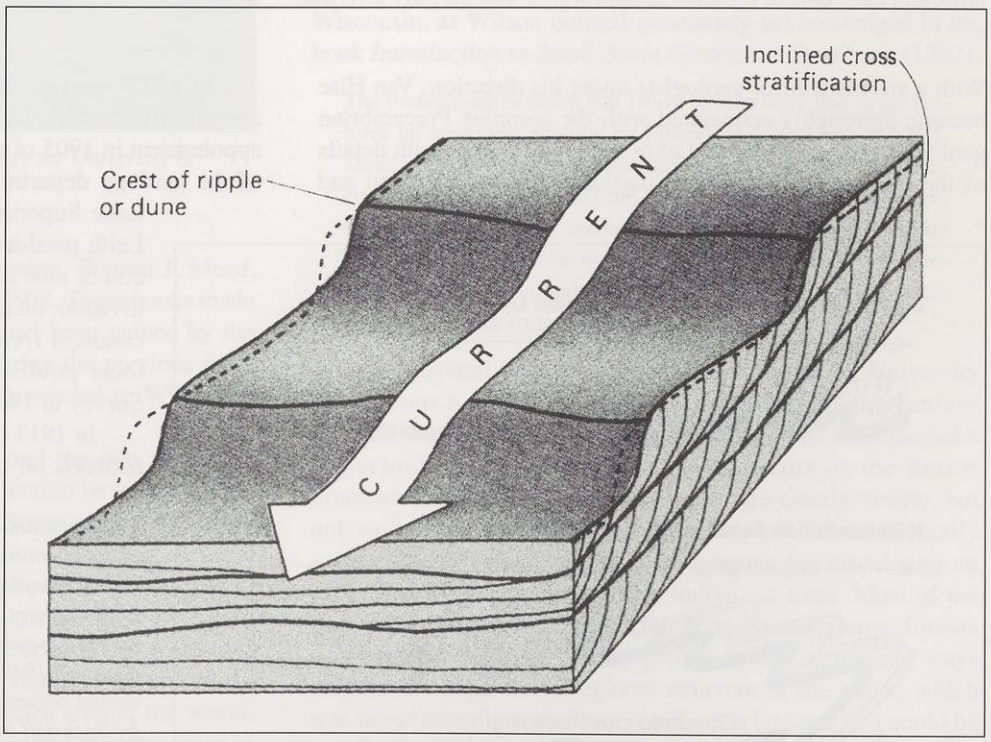
Wisconsin Roots

How is it that the export in the 1920s of important Wisconsin concepts defied the dominant westward flow of intellectual innovation from Europe across the Atlantic? What better time than during 1999, the sesquicentennial year of the University of Wisconsin, to address such a question. To find the answer, we must learn a little of the history of our university and its geology program.

It was under the presidency of geologist Charles R. Van Hise during the first two decades of the twentieth century that the University of Wisconsin began to gain international prominence, and the president's own discipline led the way. As industrialization increased after the Civil War, the federal government responded to a perceived need for more practical education by adopting the Land Grant Acts of 1862 and 1890 as well as the Hatch Act of 1887. Wisconsin responded to both initiatives. The latter created agricultural research stations, thus endorsing research as an appropriate partner of higher education.

This concept became formalized with the establishment of postgraduate programs. Van Hise himself was awarded one of the first two master's degrees in 1882, and in 1892 he earned the very first Ph.D. degree granted by the university. The new research precedent, coupled with a burgeoning demand for mineral resources, placed geology at the forefront of academic disciplines ready to answer the new call. Geology faculty members were already engaged in part-time research through governmental surveys and mining ventures. After all, it was mining that beckoned the first settlers to Wisconsin before lumbering, agriculture, and manufacturing became economically important.

The university's academic geologists were particularly well situated to engage in research by virtue of their proximity to the nation's principal iron and copper mines of the Lake Superior region as well as to the older lead mines of southwestern Wisconsin. Roland D. Irving, founder of the university's geology program; his protégé, Charles R. Van Hise; and in turn the latter's protégé, Charles K. Leith, all participated actively in studies of the iron ranges for both the state and federal governments. In 1882 a Lake Superior division of the United States Geological Survey was established on the university campus with R.D. Irving as chief. When Irving died suddenly in 1888, Van Hise became both chief of this office and chairman of the Department of Mineralogy and Geology *only eight years after he had received his bachelor's degree.*



Cross bedding or current stratification is formed by the migration of dunes. The current erodes grains from the crests and deposits them on the downcurrent or lee face as the wave-like sediment surface moves continually with the current. Each successive inclined lamination represents a fossil down current or lee face. Not only do the truncated tops of these inclined laminae indicate the original "way up" in ancient deformed sandstones, but the direction of their inclination also provides a key to ancient current directions. From Evolution of the Earth *by Dott and Batten, 1988.*

R.H. Dott Jr.

Cross bedding in a quartzite stratum at Ballachulish, Scotland, similar to examples observed by Buckstaff, Rove, and later Tanton. Compare its appearance with the page inverted.

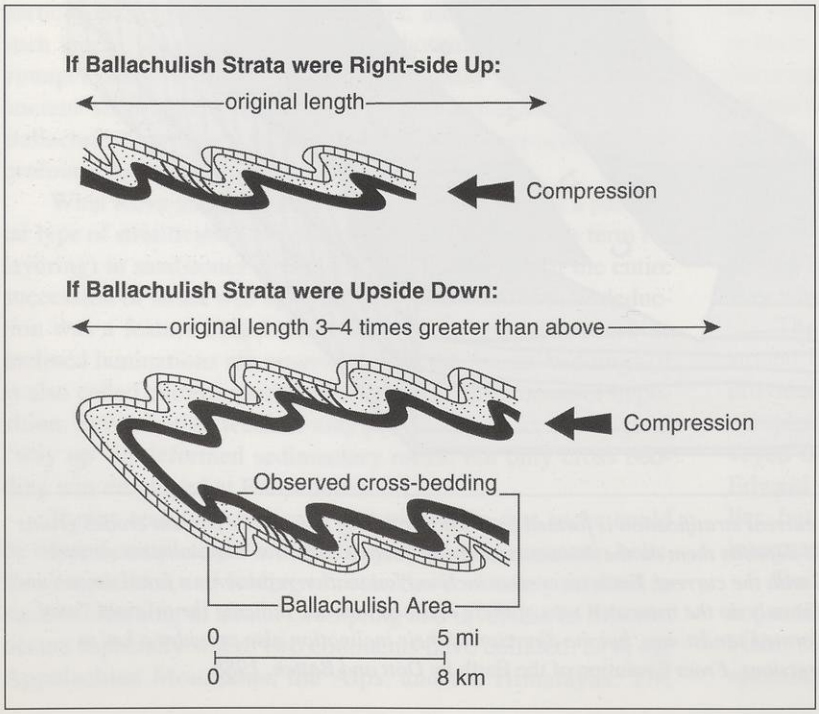
metamorphism that the old rocks of the region displayed captured his attention, and he soon became a pioneer and leading authority on the fundamentals of structural and metamorphic geology.

In 1892 a young student named Charles K. Leith answered Van Hise's advertisement for a part-time stenographer. Working with the professor's publications so captured his interest that Leith chose to study geology himself, graduating in 1897. He then joined the staff of the Lake Superior division and soon became thoroughly indoctrinated in Precambrian geology. For the Ph.D. degree, which he received in 1901, Leith took up his mentor's challenge to understand the mechanics of rock deformation and completed a dissertation titled "Rock Cleavage."

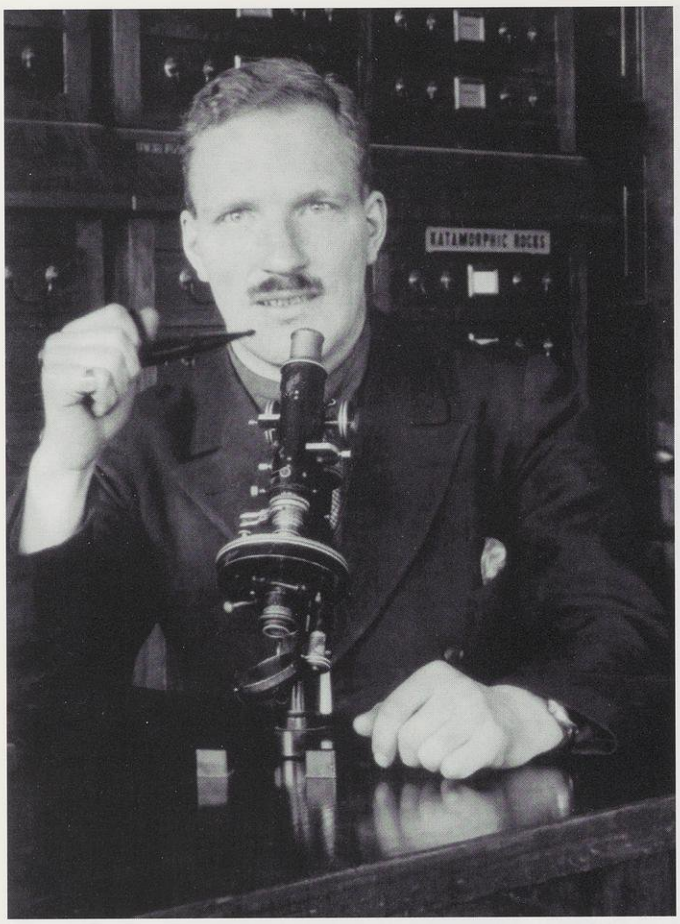
With a sizable staff of geologists under his direction, Van Hise became thoroughly acquainted with the complex Precambrian geology of the entire Great Lakes region as well as with details of the various iron ranges. In particular, the deformation and

In 1903 Van Hise was named president of the university, and soon thereafter his own history was repeated with the appointment in 1905 of protégé Leith to both the chairmanship of the geology department and chief of the federal survey's Lake Superior division. During the next six years, Leith presided over the completion of the last several of nine large government publications from that division, including his mentor's most famous publication, *A Treatise on Metamorphism*, the 1,285-page tome published by the United States Geological Survey in 1904.

In 1913 Leith wrote *Structural Geology*, the first textbook on this subject, and in 1915 he coauthored



The implications of the two contrasting interpretations of the original order of deposition of the sequence or "way up" of complexly folded strata at Ballachulish, Scotland, is shown here, much simplified. The upper case shows how the sequence was originally interpreted by E.B. Bailey in 1910 and 1916. The lower case shows the overturned sequence in the lower half as demonstrated first by Buckstaff and Rove to Vogt in 1924 and again by Tanton to Bailey in 1929 using cross bedding. This correct interpretation implied far greater compression of the strata to form a much larger and more complex regional structure than Bailey had imagined. When compared with the illustration by Ganly and the photo from Ballachulish, one can see the different appearance of the overturned versus right-side-up cross bedding.



Gilbert Wilson. From Outcrop, *1926. Courtesy the University of Wisconsin–Madison Archives.*

Metamorphic Geology with his own protégé, Warren J. Mead, whom he had appointed to the faculty in 1908. These books made widely available the new insights that had been gained by the Wisconsin Precambrian investigators during the previous three decades, and which had already been presented to Wisconsin geology students as a routine matter.

By 1915 the federal publications and the two textbooks from Madison had gathered so much attention beyond the state that students from all across the United States and Canada were attracted to the university. T.L. Tanton was one of several promising geologists sent to Wisconsin by the Geological Survey of Canada with full salary to learn the most advanced concepts of the Wisconsin school of structural and metamorphic geology. By 1920 the names Van Hise, Leith, and Mead had become legendary in geological circles around the world, thus attracting students and even postdoctoral scholars from as far away as China and Japan as well as Europe.

During the interwar years of the 1920s and 1930s, the reputation was enhanced by the migration of many young geologists with Wisconsin degrees across a still largely colonial world in search of ores to feed the furnaces of industry and petroleum to fuel the automobiles of increasingly mobile societies.

From Wisconsin to London

The 1924 story of young Rove and Buckstaff carrying their figurative Wisconsin coals to Newcastle and instructing the older Norwegian Vogt is but one example of eastward trans-Atlantic intellectual diffusion. Let us consider another interesting case.

A young student from Great Britain named Gilbert Wilson crossed the Atlantic to study mining engineering and geology at McGill University in Montreal and received his bachelor's degree in 1925. During his stay at McGill, he heard of the "Wisconsin School of Precambrian Geology," and decided to come to Madison for some postgraduate work. He came and earned the M.S. degree in 1926. After a few years in mining geology, Wilson returned to England, took his Ph.D.in 1931 at Imperial College in London, and began an academic career. In 1939 he joined the Imperial College faculty, where he taught the principles of structural geology that he had first learned in Wisconsin.

After World War II he inspired several brilliant students, who in turn illuminated another generation of students. Like the proverbial spreading of ripples across a pond, a revolution swept through the subdiscipline of structural geology during the 1950s and 1960s. Although Gilbert Wilson and his British descendants added many important refinements, this revolution in detailed structural analysis had its roots at the University of Wisconsin, as Wilson himself generously acknowledged in his book *Introduction to Small-Scale Geological Structures* (1982):

> The foundations of much that I have written were laid in the lectures on structural geology by Professors C.K. Leith and W.J. Mead at the University of Wisconsin many years ago. The principles which they expound run through the whole of this work, in places disguised in modern jargon, elsewhere modified by more recent advances in knowledge, but it was they who instilled in me the importance of minor structures in the elucidation of the major structures in the field.

What so inspired Wilson during his brief stay at the University of Wisconsin was an outgrowth of the turn-of-the-century detailed mapping of the complex Precambrian rocks in the Lake Superior region. In the Rocky Mountains or the desert Southwest, rock structures of all scales are clearly visible, but not so in the north woods of the Midwest. Metaphorically speaking, geologists there needed a means for visualizing an entire forest by examining a few individual trees. Most of the bedrock is concealed by glacial deposits and dense forests swarming with insects. Survey geologists had recognized ways to infer the large-scale, regional structure of the rocks, which was never actually seen, from small-scale features that could be seen in local, scattered outcrops. It was the principles for relating small-scale structures (e.g., cross bedding, small folds on the flanks of larger ones, and slaty cleavage) to larger structures that so impressed Wilson, and which he then perfected further during his own career.

Closing the Circle

After the pleasant summer of 1924 in Europe, Sherwood Buckstaff worked briefly in the mining industry in Missouri before shifting to the petroleum industry. He died in 1968. Olaf Rove returned to Madison to complete his M.S. degree in 1925, during which time he and Gilbert Wilson were classmates. Rove then began a distinguished, lifelong career in the geology of ore deposits. He died in 1980.

Proving that quality research and teaching need not be mutually exclusive, Gilbert Wilson became an exceptionally gifted teacher both in the classroom and in the field. He was a superb lecturer, perhaps due in part to the influence of Wisconsin's Charles K. Leith, whose lectures were legendary for clarity and stimulation. Wilson also had a flair for drawing, which greatly facilitated his explanations of the complex geometric aspects of structural geology. His energy in the field was boundless, and in early postwar times, when auto travel was impossible in Britain, he relied only upon feet and bicycle to get around the Scottish Highlands. Wilson died in 1986.

The appreciation for Wisconsin conveyed by Gilbert Wilson to his British colleagues was reciprocated by fond memories of him among his Badger contemporaries. In a remarkable coincidence, the Wilson-Wisconsin circle was closed in 1963 when a young Scot named Ian Dalziel, who had recently earned the Ph.D. from the University of Edinburgh, joined Wisconsin's faculty. Dalziel had studied under M.R.W. Johnson, one of Gilbert Wilson's students, so he brought to Madison the new British structural geology with its Wisconsin genealogy.

Ironically, neither Dalziel nor any of the faculty realized this circular connection at the time. He applied the British structural tradition in a restudy of the Baraboo district, results of which were published by the Wisconsin Geological and Natural History Survey in 1970. Poignantly, it was the Baraboo district that had been for seventy-five years the chief showplace for demonstrating the pioneering concepts of Charles R. Van Hise and Charles K. Leith.

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Thus it was that geology at Wisconsin achieved its international reputation, and the Wisconsin Idea that the "boundaries of the campus should be the boundaries of the state" could be modified to extend those boundaries around the entire globe. This was apparent to Edwin C. Young, chancellor of the university from 1968 to 1971, when he visited a university in Pakistan during the early 1960s as a member of a team of economic advisers. Imagine his surprise to find displayed on the walls of the engineering school several maps and charts of Wisconsin geology, including the Baraboo district.❧

An example of Gilbert Wilson's artistic skill for clearly reproducing the complex details of geological structures. This case shows a medium-sized anticline or upfold in Devonshire with superimposed smaller structures (small folds on the sides and slaty cleavage lines cutting through the foldl), which provides clues for inferring larger structures, which commonly are poorly exposed. From Bulletin of the Geological Society of Belgium, *1961.*

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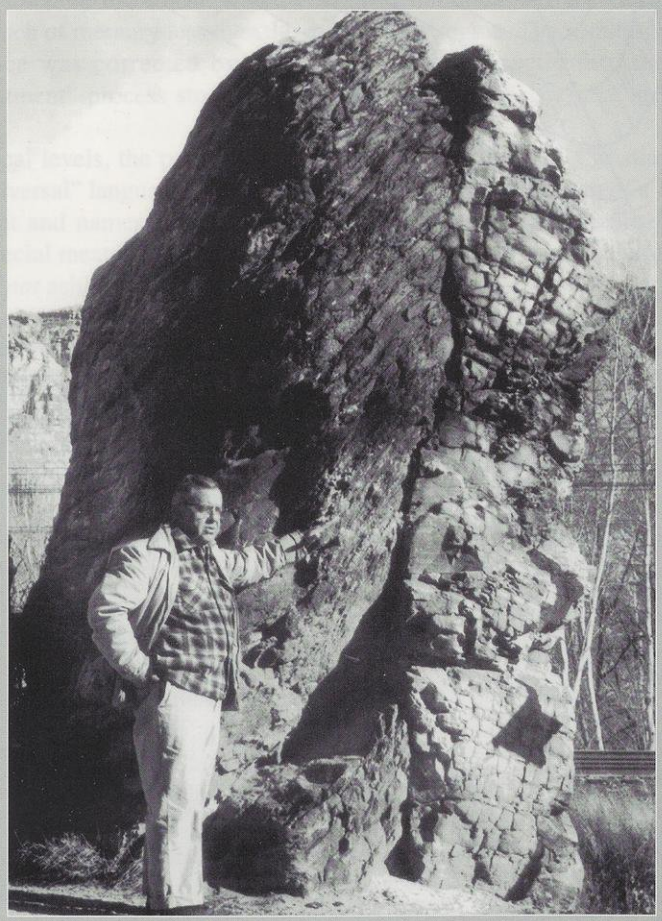
Van Hise Rock in the Baraboo Hills

Van Hise Rock near Rock Springs, Wisconsin, beside State Highway 136 in the Upper Narrows Gorge, is the single most famous geological feature in the Baraboo district. In May 1999 it was formally dedicated as a National Historic Landmark. Both its accessibility and the clarity of structural features displayed here made the locality a prime place for Charles R. Van Hise and Charles K. Leith to demonstrate fundamental principles of structural geology early in the twentieth century. It remains important today, as hundreds of students from dozens of colleges are instructed at this and other sites in the Baraboo Hills.

In the 1959 photo, former Professor Stanley A. Tyler points out slaty cleavage in the dark band displayed in the left half of the rock. This condition is the result of microscopic movement in the rocks as they are bent into folds; and it is the smooth, thin sheets of rock between the cleavage planes that people for centuries have quarried for slate in other parts of the world. The relationship of this cleavage to the nearly vertical, light-colored quartzite at the right—as well as cross bedding in that same quartzite stratum—indicate that Van Hise Rock lies on the north limb of the large Baraboo syncline, or downfold (see diagram on page 36). It also shows that this limb is slightly overturned. Because the syncline is mostly concealed to the south, the true nature of the large structure was not clear until the turn of the century, when the significance of such small-scale features as cleavage was fully recognized.

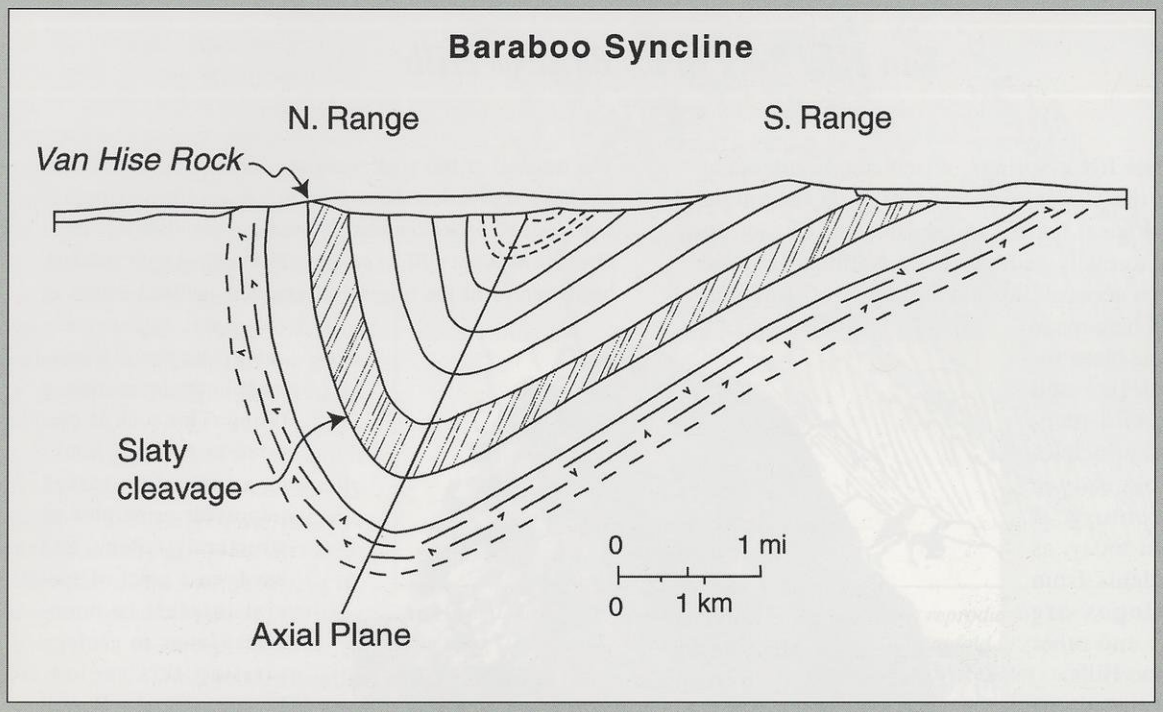


In this 1959 photo of Van Hise Rock, Professor Stanley A. Tyler points out slaty cleavage in the dark band displayed in the left half of the rock.

In 1923, five years after Van Hise's death, friends mounted a plaque on the rock which reads:

The material of this rock was once sand on the sea bottom and has since hardened into quartzite. It was tilted to the present position by a slow earth movement, and then separated from the adjacent cliff by erosion. The vertical light and dark bands represent the original layers. The inclined cracks in the dark layer were caused by the readjustment in the layers during tilting. This rock is pictured in geologic books as a type illustrating important principles of structural geology, and has been a point of special interest to many investigators in geology visiting this region. President Charles R. Van Hise of the University of Wisconsin was one of the first and foremost of these.

According to a newspaper account of the dedication ceremony, C.K. Leith gave the principal speech. He noted first the pioneering work of Van Hise and R.D. Irving in the Lake Superior region, and then talked about the structure of the Baraboo Hills. E.A. Birge, president of the university, was to have spoken next, but apparently had gotten lost on some of Sauk County's winding roads. Instead, Professor W.H. Twenhofel spoke extemporaneously of the deposition of the Baraboo strata, how they were then deformed when a mountain range was created, how that range was eroded deeply and then covered by the sea, and finally how erosion had produced the present landscape. In addition to Van Hise's two daughters, several of his colleagues and friends attended. Apparently the plaque had been erected because of a rumor that the rock was to be removed in order to widen Highway 136.



A diagram of the Baraboo syncline, which is a downfolding of Precambrian strata beneath the area, shows the relationship of slaty cleavage to the syncline. Van Hise Rock occurs on the vertical north limb of the structure; Devils Lake is on the more gently inclined south limb.

With the designation of Van Hise Rock as a National Historic Landmark by the National Park Service in 1999, the Wisconsin Department of Transportation and the State Historical Society of Wisconsin added a roadside historical marker, which states:

> This outcrop of Baraboo Quartzite, located in the Baraboo Hills and known as Van Hise Rock, has been the focus of national and international scientific interest for over one hundred years. The rock is named in honor of University of Wisconsin Professor Charles R. Van Hise (1857–1918), renowned geologist, conservationist and President of the University of Wisconsin. In the 1890s, Van Hise used this outcrop to demonstrate the kinds of changes that occur in rocks during periods of mountain formation. Van Hise's observations of the Baraboo Hills would help to develop his groundbreaking concepts of structural and metamorphic geology. Later, these concepts would be universally accepted as the principles of structural geology. Van Hise Rock has become the single most important locality to demonstrate these principles. Countless geologists and students visit Van Hise Rock and the Baraboo Hills as a geologic mecca and continue to learn from this exceptionally diverse geologic laboratory.

In 1970, on the occasion of the annual meeting of the Geological Society of America in Milwaukee, I.W.D. Dalziel and I compiled a detailed report titled *Geology of the Baraboo District, Wisconsin*, published by the Wisconsin Geological and Natural History Survey. It brought together and updated the results of all previous work in order to provide a state-of-the-art guide for students and professionals through this classic region.

Even now, at the turn of a new century, researchers continue to make new discoveries about the geology of the area. For example, an ancient soil was identified in 1995 by Professor L.G. Medaris. It had formed by the deep weathering of granitic rocks that underlie the Baraboo quartzite at Baxter Hollow. Those older rocks have recently been dated at about 1,760 million years ago; therefore deposition of the sand, which was later to be altered to quartzite, must have occurred about 1,700 million years ago.

All of the Precambrian rocks of the district were then deformed and metamorphosed during a mountain-building episode around 1,650 million years ago, or perhaps somewhat later. A still younger heating event, probably about 1,450 million years ago, produced subtle but pervasive mineralization, including veins in the gorge near Van Hise Rock. The 1970 geological guide was designed for serious students of geology, but a more user-friendly guide titled *The Ice Age Geology of Devil's Lake State Park* by J.W. Attig, L. Clayton, K.I. Lange, and L.J. Maher was published by the survey in 1990 as Educational Series No. 35. It is available either from the survey's office in Madison or at the park: Geological and Natural History Survey, 3817 Mineral Point Road, Madison, WI 53705 (608) 262–1705; Devil's Lake State Park, Baraboo, WI 53913–9299 (608) 356–8301.

Robert H. Dott Jr.

To the Editor

I have recently written a poem about a weather event. Because of the Wisconsin connection and because of my high regard for the *Wisconsin Academy Review*, its emphasis on science and the arts, and its tradition of interesting weather-related poetry, I am sending the poem to you.

On a literal level, the poem recounts my experiences during and after an unusual windstorm (peak wind 54 mph) in the Madison, Wisconsin, vicinity during the early morning hours of June 30, 1993. The strong, remarkably steady winds were induced indirectly by a dying thunderstorm on the northern fringe of the thunderstorm complexes that spawned the epochal Iowa floods of 1993.

The winds occurred *after* the thunderstorm's passage, however, and were not the gusty and variable winds typical of an in-progress thunderstorm. The wind event was due to the presence of a strong "wake low" behind the storm, which contained minimum surface barometric pressures as much as one-half inch of mercury less than the surrounding region. The resulting intense small-scale pressure imbalance was corrected by straight-line winds directly into the low (part of the "geostrophic adjustment" process studied by atmospheric dynamicists) that are the subject of the poem.

On metaphorical levels, the poem addresses the mystical event of Christian Pentecost and its analogy in the "universal" language of science. I am a Presbyterian, the son of a Presbyterian minister, and descendant and namesake of the founder of Scottish Presbyterianism, so the subject of Pentecost holds special meaning for me. I attempt to explore the ways in which I, as a scientist, and science itself have *not* achieved the same universal fluency that the first Christians did at Pentecost.

Separate from this critique is the Madison windstorm itself, which spoke and moved people and objects independent of scientists' ability to comprehend or communicate the event. I try to explore this theme using language that simultaneously evokes biblical post-resurrection events and scientific jargon. For example, "Galilean variant" refers to the native tongue of the apostle Peter, the preacher at the first Pentecost. But the phrase also echoes the physics principle of "Galilean invariance," the theory of the equivalence of events in two coordinate systems moving relative to each other that is attributed to Galileo.

The poem was written in Italy on the night of Pentecost 1998 at Castelvecchio Pascoli, Tuscany, just up the hill from the home of early twentieth-century poet Giovanni Pascoli. Pascoli inspired the *crepuscolari* ("twilight poets") and is renowned for his eclectic vocabulary and ability to recreate the sounds of nature in his poetry. I was in Italy to attend a NATO Advanced Study Institute on climate modeling with participants from numerous NATO countries representing dozens of native languages. Thus, the poem was composed on Pentecost, about a Pentecostal wind experience, during a meeting that might best be described as a scientific Pentecostal gathering.

John Knox
Department of Geography and Meteorology
Valparaiso University

Pentecost

30 June 1993

Awakened by wind
Wearywondering: do
Iowa floodstorms beckon?
No; fluent, it lacks
Spurt and pause, a
Gustless rush sustained
Unpunctuated by thunder.

The shades shimmy. Stirring I
Whisper to my scientist-spouse
"Geostrophic adjustment"
Speaking tongues half-translated from the Greek,
Galilean variant,
Babble of a specialist.
A rare nimbus collapses, spawning
Gush into absence
Bursting headlong before Earth
Spirals it askance,
Retrospective prophet of senescence.

Shade-trees supine, I shed linens and
Arise,
Dark-drunkenly staggering in shag
To the slamshut door—
Passing through soundless stumbling. A
Severe weather statement scrolls
Assuring end to breeze
Unforeseen seconds hence,
Its source obscured, name
Stricken from public consumption.
Unstanched, the spewing sluiced past

Until sunrise, strewing
Streetslough and spiked squiggles on
Pressure traces to attest.
The tower gauge malfunctioned.
Story unspooled, peers share
Stitched-up passion, since
An eyewitness perspective
Simply isn't publishable.

Soulwhirring but wordless I
Await a second wind.

John Knox

THE HISTORY OF WISCONSIN, VOLUME IV, THE PROGRESSIVE ERA, 1893–1914 by John D. Buenker. Madison: State Historical Society of Wisconsin, 1998. 663 pages, $40 hardcover. ISBN 0–87020–303–7

by Jack Stark

John D. Buenker's excellent book about the Progressive Era fills the gap in the State Historical Society of Wisconsin's series on Wisconsin history. That series now covers this state's history from the beginning of European exploration until 1965. Buenker deals with the most complex, the most interesting, and the most important of the time spans in Wisconsin history. The riches available to aficionados of this state—which consist also of Robert C. Nesbit's one-volume history and a multitude of specialized books and articles—thus have become even more valuable.

For his book Buenker accumulated a multitude of facts, which necessitated finding a scheme for organizing them. The book's text consists of three parts. Each of the first seven chapters develops a theme, and each demonstrates that the major late-nineteenth-century developments, such as the growth of manufacturing, created both opportunities and problems. The next five chapters analyze forces that were able to deal, probably better than did forces in any other state, with those developments. The forces are late-nineteenth-century reformers, Robert M. La Follete, the earliest phase of the Progressive hegemony, the glorious 1911 legislature, and the Wisconsin Idea. The final chapter describes the rapid decline of Progressivism, which, because the hubris of Progressive leaders was one of its major causes, resembles a Greek tragedy; and it assesses the legacy of the five forces. Buenker also has taken considerable pains to identify, characterize, organize, and evaluate virtually all the sources and secondary material pertinent to the era.

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Buenker's coverage of three topics deserves careful scrutiny.

His chapter on Robert La Follette is a model of judicious and sensible interpretation. He eschews both the hagiography that La Follette, his wife, his daughter, and a few others published and the over-zealous debunking of the myth that occurred later. He limns a portrait that convinces me of its accuracy, partly by identifying the times when La Follette adopted certain positions and the context in which he did so. A reader can thus deduce when La Follette was self-serving or merely along for the ride and when he was either innovative or the dynamo that energized the new ideas of others. Buenker's La Follette is neither a saint nor merely a creature of his own self-promotion, but an effective politician who was driven by both a sense of idealism and a keen awareness of political expediency and who had an enormous effect, most of it positive, on this state.

Buenker is also good on the 1911 legislature's astounding accomplishments. Listing them here would be like giving away the plot: the book's narrative leads to its account of that legislature. He also places that legislature's accomplishments in historical context and reveals some of the reasons why it was so effective, such as the careful analysis of issues that occurred between the end of the 1909 legislative session and the beginning of the 1911 session. I wish that he had put his analytical skills to work a bit more on those reasons. The members' imposing talent (e.g., Erich Stern had a B.A. degree summa cum laude and a law degree from Harvard and used his fluent French and German to study at the Sorbonne and the University of Berlin), inviting speakers (many University of Wisconsin professors, as well as such outsiders as Theodore Roosevelt and Booker T. Washington, addressed members) and the adroit leadership of Speaker of the Assembly Ingraham are other reasons.

"The Wisconsin Idea" is certainly an enigmatic talisman. Buenker summarizes some definitions of it and then defines it as a strengthening of government and a purification of politics that were effected by individuals who tried to oppose monopolies, strengthen social bonds, and maximize "social efficiency" (roughly, to unlock individuals' potential). In Wisconsin, according to Buenker, the main proponents of the Wisconsin Idea were certain Progressive politicians, certain University of Wisconsin professors and administrators (John R. Commons, Charles Van Hise, and Richard T. Ely in his early years were particularly important) and the Legislative Reference Library, especially its head, Charles McCarthy.

I think that Buenker's definition is an excellent one for Progressivism, but not for the Wisconsin Idea. He has performed a great service by sorting out and distilling the elements of Progressivism. However, if this definition fits the Wisconsin Idea, that idea became moribund in the 1914 election, and that cannot be right. I would prefer to define that latter term as the University of Wisconsin's service to state government and the people of the state.

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Buenker's book, then, has many virtues. It is crammed with data, its organization is astute, its prose is good, and its narrative force propels the reader along. I will point out a few ways in which it could be even better—not to denigrate a first-rate book, but to indicate the impossibility of writing a flawless book on such a complicated subject.

Some of the facts and analyses of minor issues are a bit askew. A few occur in coverage of the law. For example, Buenker writes that one of the reasons why the state supreme court held the Progressives' forestry program unconstitutional was that it was not a work of internal improvement. Actually, the court (in State ex rel. Owen v. Donald) held, unconvincingly, that the program *was* a work of internal improvement and that, because the constitutional amendment that seemed to make an exception for forestry projects had been improperly advanced by the legislature, such projects were not exceptions to the general rule, which forbade the state to contract debt to build—and to participate in building—that kind of work.

There also is another layer to the story. The court, although conservative, upheld all the major legislation of the 1911 legislature that was challenged, except for two environmental acts. The justice who wrote the opinion in the forestry case, Roujet Marshall, possibly not coincidentally, had been the chief counsel for the Weyerhaeuser lumber interests.

Errors in the book, however, are few, as are the passages of rough prose (e.g., occasionally a word or phrase seems to have been omitted) and the repetitions.

Finally, I must mention that this fine book is an elegy. Life in the era that is its subject was in some ways solitary, poor, nasty, brutish, and short. However, the determined effort of hundreds of Wisconsinites to achieve a genuinely common good is inspiring. Unfortunately, it appears to be merely the subject of history. If for no other reason—and there are many other reasons—Wisconsinites should read this book for its description of that noble endeavor.

Jack Stark is the author of six books and many articles, some of which have appeared in the Wisconsin Academy Review, *and his main current project is the general editorship of a series of books on the United States Constitution.*

JEFFERSON IN LOVE: THE LOVE LETTERS BETWEEN THOMAS JEFFERSON & MARIA COSWAY edited by John P. Kaminski. Madison House Publishers, 1999. 1–800–604–1776. 138 pages hardcover.

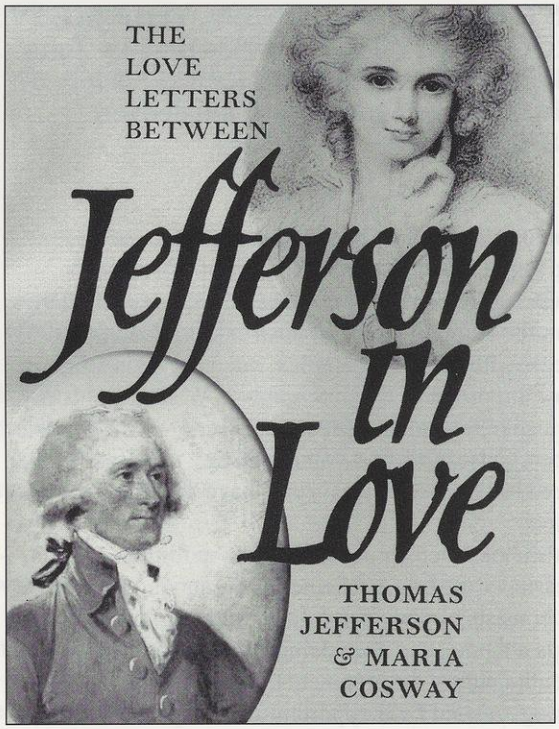
by Faith B. Miracle

"Remember me, and love me."
Thomas Jefferson to Maria Cosway
October 14, 1789

On August 6, 1784, Thomas Jefferson arrived in Paris as United States ambassador to the court of Louis XVI. In August 1786 he met Italian-born Maria Cosway, a gifted musician and accomplished painter, who had been elected to the Academy of Fine Arts in Florence at age eighteen. Jefferson found her to be irresistible. They were together almost daily between mid–August and mid–September of that year, warmed by the late summer sun, charmed by the sights of Paris, enchanted with each other. Early in the friendship, Jefferson spoke of "a generous spasm of the heart." He was forty-three; she was twenty-seven.

Though Jefferson, whose wife had died in 1782, was free to pursue a relationship, Maria Cosway was married to an English portrait painter, and divorce was out of the question. On October 12, 1784, Jefferson described his feelings when Cosway left Paris for London, writing that he had turned on his heel and walked away, "more dead than alive," telling her that his mind "broods constantly over your departure."

Of the more than forty letters contained in the book, this October 12 letter is the longest and perhaps reveals better than



any other Jefferson's anguish over the star-crossed friendship with Maria Cosway. Known historically as the "head-and-heart-letter," it is an internal dialogue between his intellect and his emotions, and it leaves little question about the degree of his inner turmoil. He describes himself as: "Overwhelmed with grief, every fiber of my frame distended beyond its natural powers to bear."

Kaminski has written a compelling introduction to the correspondence, and the reader arrives at the letters with anticipation, eager to read the very words penned by these two extraordinary people. It is fortunate for us, and for posterity, that Jefferson used a portable press—an early version of a copy machine—when writing to Cosway; thus we have the benefit of both sides of the exchange. The original letters are preserved in three public archives, and one letter is in a private collection.

The book ends when the letters of passion ceased in 1790. There were thirteen more letters between the two; Jefferson's last was dated October 24, 1822. He died on July 4, 1826, and Maria Cosway died twelve years later. He had hoped she would come to America, but she would not leave her beloved Europe. Often the two wrote of meeting in an afterlife, "where time and distance are nothing." Both dedicated their later years to the cause of education—she established schools for girls, he the University of Virginia.

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I venture to guess that most of us are a bit weary of knowing intimate details of the lives of our leaders. So why, after two centuries, should we want to read Jefferson's private mail? John Kaminski offers a couple of reasons in his preface: 1)

"These letters provide the clearest window through which to view and assess Jefferson's personality . . . No other extant letters give us such insight into the psyche of this enigmatic man." 2) "They make for good reading" . . . Jefferson was "one of the greatest writers in the English language."

All aspects of Thomas Jefferson's life continue to fascinate, it seems. This book, beautifully designed by William Kasdorf of Madison House Publishers, can only enhance our efforts to understand this complicated, multi-faceted man—as well as the intriguing young woman who captured his heart.

Faith B. Miracle is editor of the Wisconsin Academy Review.

BIRDS OF WISCONSIN by Owen J. Gromme. Madison: The University of Wisconsin Press, 1998. 240 pages, $75.00 hardcover. ISBN 0–299–15860–8.

by Theodore J. Gostomski

Some books about wildlife are valuable for the information they contain, for their usefulness in helping the reader to learn more about the natural world. Some books are cherished for their artwork, captivating in their ability to evoke the beauty inherent in nature. The revised edition of Owen J. Gromme's *Birds of Wisconsin* is both of these.

Birds of Wisconsin was first published in 1963, the distinguished culmination of twenty-three years of work by Owen Gromme near the end of his career with the Milwaukee Public Museum. Gromme's book was intended to update a similar book published in 1903–05 about the state's native avifauna. *Birds of Wisconsin* filled the niche successfully and was met with critical acclaim. Frederick Ott wrote in the preface to the first edition that the book will "enhance the story of Wisconsin's natural environment and resources, provide a purposeful educational benefit to all those who now enjoy our avian wildlife, and awaken in those yet to come the enduring interest and love of the beauty of the outdoor world." With regard to the frontispiece featuring two bald eagles and an osprey, the late Roger Tory Peterson, perhaps the best known of contemporary American birders, wrote, "I can state unequivocally that Gromme's canvas is the finest bald eagle composition ever painted."

Such praise spoke to the dual values of Gromme's work. *Birds of Wisconsin* provided naturalists—amateur and professional alike—with a reference book and a set of beautiful paintings that portrayed the unique features and plumages of each of Wisconsin's more than 200 bird species while also illustrating the habitats in which the birds are found. Such was Gromme's hope for the book. He felt that it "must be accurate and scientific to answer the demands of ornithologists; it must also be a field guide for the general public; and it must be simple enough for classroom use." While the revised edition is too large to be a field guide, it is both an excellent resource and an admirable showpiece, a bridge between science and art.

Each set of pages features a full-color depiction of a bird or group of birds in its native habitat. The facing page identifies each species by both common and scientific names; gives a range map to show its distribution in Wisconsin; a date line indicating what months the species can be found here; and, if the bird nests in the state, when breeding occurs. Male, female, and sometimes immature plumages are shown where appropriate, and a brief statement about the migratory and breeding status of each species is provided. All of this information has been updated through the efforts of preeminent Wisconsin ornithologist Sam Robbins Jr., bringing this revised edition up to date as of Supplement 41 (1997) to the sixth edition of the *A.O.U. Check-List*.

On many pages, members of the same bird family are shown together, helping to elucidate subtle difference between such groups as the shorebirds and the sparrows. Gromme even depicts a family of ruby-throated hummingbirds along with a two-lined morning sphinx moth, which is often confused for a hummingbird because of its habit of hovering while it feeds on flower nectar.

Some unique differences still exist between Gromme's paintings and our current knowledge. Gromme's ruffed grouse is depicted as being monomorphic (males and females having the same plumage) when we now know that such is not the case. (The black band near the end of the ruffed grouse's tail is complete in males, but broken in females). But these details serve to make the book even more of a treasure, showing the progression of our learning over time. Even more interesting is the fact that the history of Wisconsin bird life is alluded to by the presence of such species as the passenger pigeon and the whooping crane among the images, both former residents (though the whooping crane was uncommon) who have disappeared from our land and water. Conversely, eighty-one birds confirmed as Wisconsin species since the book's first publication are listed in an appendix, unable to be brought to life through Gromme's eyes and brush.

Owen Gromme was a great fan of Wisconsin naturalist and writer Aldo Leopold. Gromme once commented about a painting he did of sandhill cranes on Leopold's sand county farm: "I simply tried to put in paint what Al Leopold put in words." Many would say he was successful. As Gromme biographer Michael Mentzer noted in *The World of Owen Gromme* (Stanton and Lee Publishers, Inc., 1983, page 23), "if Leopold applied his science beautifully, then it should also be noted that Gromme applied his art in a similar manner." Indeed, Gromme did well in bringing the state's birds to life. Whether birders use this book for the natural history information, as a source of artistic reference, or as a treasured piece of regional and ornithological history, the revised edition of *Birds of Wisconsin* is as necessary a book today as it was in 1963.

Theodore J. Gostomski is the LoonWatch coordinator at the Sigurd Olson Environmental Institute of Northland College and Bayfield County coordinator for the Wisconsin Breeding Bird Atlas Project.

THE COMPLETE COW by Sara Rath. Vouageur Press, P.O. Box 138, Stillwater, MN 55082–0338. 156 pages hardcover, illustrated, $29.95. ISBN 0–89658–375–9

by Justin Isherwood

When members of the the Lewis and Clark expedition returned from their defining nine-thousand-mile journey to the Pacific, they knew they were home when, thirty miles above St. Louis, they saw a milk cow. A thousand, ten thousand wild savage scenes had they witnessed; what emblematized and encapsulated home for them was the cow.

I believe those who do not feel this same sense of cows should be forcibly removed from all areas north of 42°30' (the Illinois border). I was raised on a dairy farm; I milked the last time the night before I was married (and yes, I believe this should be a ritualized part of every marriage service), followed after by grad school and Vietnam, all of which I survived for no other reason than I was still within the supreme guardianship of the homeward cow.

The preceding is to authenticate my expertise in reviewing Sara Rath's book *The Complete Cow*. Ordinarily I cringe when people who should know better take up country subjects. I love Jane Smiley's writing style but hated *A Thousand Acres*. There ought to be a law against abusing farmers that way; somehow we always end up somewhere between Barney Fife and Ed Gein. At the outset, I steeled myself to endure Ms. Rath's book, in all probability one of those episodes to render farmers as fools, or make us ashamed of our crimes against suburbs, some of which deeds are cows.

Sara, darling, I'm sorry I doubted you.

And to the reader: If you know a farmer, and if you have the chance to love one, give him or her this book.

And if you don't know a farmer and don't give a damn, I still recommend you consider this book. I realize it is bad form for a reviewer to gush, because this isn't done, it just isn't. The Mosaic Law is stern toward cows after all, though I admit to admiring Aaron whose golden calf was most artful and sympathetic to the human condition, which is to reiterate, even theologically, the centerness of cows.

The Complete Cow is what the title implies. It is a whole bunch about cows; where they came from, what dinosaur was their mama, the kinds, the taxonomy, the lore, the history, what chewing the cud means. *The Complete Cow* looks like every other coffee table book, about the size of a '74 Chevrolet hubcap. The standard book in this formula is a bimbo book, nice cover, nice art, no substance, or about what can be said of overdone hubcaps. *The Complete Cow* has pretty pictures and it has substance. This is rare, particularly when the subject turns to the comforts of pagan, which is to say honest, religion—meaning cows.

As a farm kid I thought I knew everything about cows. Inside and out, with the rubber glove and without. Amazingly I didn't, and I'm willing to bet a hundred pounds of potatoes there isn't a current dairy farmer in this state who knows one-tenth of what Sara has written on cows.

Did you know there is a cow called the Randall Blue? That Guernseys went to Antarctica with Admiral Byrd? That steers grow the longest horns (go figure)? That there are Belteds and Galloways, also Kerries, Kuri, and Markies? Neither did I. Did you know an average cow yields ninety-five pounds of feces and urine per day? (Somehow I should have known that. I guess we weren't in a measuring modality.) The average cow's temperature is 101.5°F., which is why sixty of them in a barn renders it not such a bad place on a thirty-below night in Wisconsin. The biblical Aaron knew this well, that a cow was the better mother goddess than a shedful of chiseled stones.

Sara has done Wisconsin a favor with *The Complete Cow*. The well-heeled tourist tends to look down on the cow; vineyards are more the setting they are after, something perhaps in the south of France. Apple orchards are also acceptable, horses too if Arabian, maybe an herb garden with statues and a fountain. *The Complete Cow* is a new pressing of not only what is fair and good, but that the cow is a most sophisticated vintage.

The Pulitzer committee needs an added category for its literary awards, under "works of kindness."

Justin Isherwood is a writer and potato farmer who lives in Plover.

Inside the Academy

When the Wisconsin Academy convened in Stevens Point for its 129th annual conference this spring, three literary awards were presented at the April 10 luncheon ceremony. Rebecca Conn, a high school student, and Jackie Langetieg received first-place awards in their respective poetry categories and Tom Alesia received the first-place fiction award. The poetry jurors were Cathryn Cofell, Richard Roe, and Ellen Kort; and the short story was chosen by Larry Watson. The cash awards were funded by an anonymous donor in recognition of the Academy's outstanding contribution in the field of letters.

Vincent from Holland

He was a winter birth, a red
windfallen apple wrapped in cold
white christening gowns, and they
wondered in their mourning weeds if
he would die, like the first, before
his time. Winter blasts the churchyard black;
when spring comes the stones are darker
than they were. Summer left him burned
and orange; he bathed in leaden blues and greens
to clear the field dirt from his ears.
The autumn did not touch him with its
icebound water winds; his mouth
was round with summer, and there
was no crust of ice to his hot bristled
beard when he stood hanging
on the edge of December and dreaming
of July.

Rebecca K. Conn

T'ai-Chi In Four Movements

I. The Beginning

The teacher wears black and white,
light in opposition to dark—-the symbol
for yin and yang. Unknowingly
over half the group does, too.
I don't feel as fat as I dreaded.

The warm-up is just camouflaged exercise,
but the sparkling day bribes me to enjoy it.
My hibernated muscles stretch stubbornly
I'm awkward—-an elephant trying to be a jaguar.

II. The Form

My body tries to forget itself,
return to the rhythm of nature.
I walk heavy, filled with bear power.

My chest is a box, my spine a string of pearls
connected to the universe. I shift my weight
to the left foot, my right arm lifts on the kiss
of a breeze—-weight
an anachronism of no weight.

Practice anything, she says in today's farewell—
even if it's wrong. Next time you'll have something
to correct.

She didn't check my form, touch my leg.
Am I already perfect?
Or has she deferred to the old bear instead—
left it to its lost causes.

III. The Practice

I am in the barefoot dark—I step out cautiously
turning my right foot, stepping strongly on my left heel
settling into my balance.
I loosen my belly's tension, turn my head,
pulling it past stiff neck muscles
rigid prisoners of my clenched jaw.

Just when foot is firm and body balanced—
the lean into the wind thrilling as an untried lover—
a new direction is demanded.
Practice. I don't know where my balance
will meet my movement. *Practice*.
Start again in the familiar footfall,
turning
leaning out
feeling the sweet soul-kiss of new space made mine.

IV. Animal Frolics

Resting deer, walking deer
press
fall back
turn
swing arm—not able to think like a deer
because I'm watching the teacher.

I close my eyes and become the deer,
drift through dark
rest
pull back
listen for danger
press forward.
The pond wears its cool scent—
I walk on small-boned hooves toward marsh grass,
ears up, tongue on the roof of my mouth,
jaw relaxed.

Each cool T'ai-Chi morning
of these storm-surrounded days remains perfect.
My garlic and brewers yeast discourage lazy mosquitoes.
Perhaps another night I'll become a mosquito,
bite the deer, take her heart into my own,
and fly thought the woods bending and pawing the earth.

Jackie Langetieg

Winter at the Zoo

by Tom Alesia

I walk to the zoo near the giant medical center. At a picnic bench, I sit holding insurance forms and pamphlets that I don't care to read. I am thirty and work as an accountant at a company that donated enough money to have the zoo's primate house named after it. About now, my boss should be wondering where I am.

I will call my former girlfriend tonight. There's no rush. She's too emotional, and when our relationship ended she said her plants were more talkative than me. I think about my mom and dad, both of whom died while I went to the state university. Call it crude, but I still had a great time during my four years in college. I miss them now.

I consider sitting at the zoo all day, hiding in the bathroom at night, and never leaving all winter. But I don't. After an hour, I peel out of this trance. As I stand, I have to lift my body from the bench. When I do, I see a speck of red that looks like blood on my finger. I'm disoriented. Blood? I look back at the bench and realize that I sat on a ketchup packet. I touch the back of my pants and feel the ketchup.

Nearby, a boy as tall as a fire hydrant watches me and laughs. An adult tells him to stay with his assigned partner, but he's too busy pointing at me.

I wipe my pants with a few leaves. It's not the worst thing that happened to me today. Late this morning, I sat in a tiny office at the giant medical center and learned I have a disease I can't pronounce or spell, but that a doctor, whom I just met, told me is serious, very serious, yet curable. I love numbers. I'm good with numbers. Still, I never ask about percentages.

I start chemotherapy treatments Monday morning.

■

A six-foot pole holds three bags with substances that I can't pronounce or spell. It's my second of five morning-long chemo treatments. After two weeks of rest, I'll start the process again. This pattern will continue over three months, my doctor says, until late winter at least.

Sitting next to me is a wrinkled man the nurse introduced as Herm. He's wearing a frown and a hat promoting a farm seed company. He's watching "The Price is Right" on the overhead TV. The volume is turned so loud that the show's contestants seem more delirious than usual. Herm's treatment ends in a half hour, which hardly seems fair considering I'm scheduled for another three hours plus. I tell the nurse this, but she touches my hand that's stuck with an IV needle and explains that I'm young and can take extensive chemo treatments. Others, she adds, aren't so lucky.

When I finish today, I feel oddly rejuvenated. I'm not nauseous. I'm hungry. I tell the nurse how good I feel, and she forces a smile while telling me that I'm off to a great start but that chemo will wear me down this weekend.

I feel good enough, however, to walk to the zoo. I hardly realized the zoo existed before. It's the most serene place in the winter to relax and to boast to the animals how I'm going to beat this crazy illness.

The animals are remarkably good listeners.

■

A month later, two doctors examine my chest X-rays outside a tiny room where I sit wearing a thin gown and socks. I read *People* magazine with Princess Di's two sons on the cover. The article quotes palace officials as saying how well the pair is handling their mother's tragic death. But the article warns that they may have their father's penchant for bottling anger.

I can hear the doctors discuss my X-rays, so I begin to hum my college's fight song to stop the intrusion.

My doctor, all business, walks into the room. He tells me he conferred with a colleague about my X-rays. The other doctor, he says, looked at my spotted lungs and said, "Wow."

I smile nervously. I have a form of testicular cancer, but it has spread to my lungs.

"I don't suppose that was 'wow' as in 'very good.'"

The doctor, all business, says no.

■

I know about cancer already. Breast cancer killed my mother five years after her diagnosis; lung cancer killed my father six months after his.

As I walk through the zoo, I tell the animals about this. Of course, I don't talk out loud. I think it as if the animals can hear me.

I tell them about my fear, too. How I pace my apartment at the darkest times: 1:26 a.m., 2:14 a.m., 3:26 a.m., 3:55 a.m. The doctor used the word "rare" to describe my condition yesterday.

On post-chemo weekends, I vomit until it feels like I've spit up everything, including my toe nails. There's also fatigue. Extreme, extreme fatigue. I measure these weekends by minutes. It's an approach one of the llamas suggested.

■

My hair is gone. I wear a bandanna because looking like Homer Simpson doesn't suit me. I return to work between chemo weeks. My co-workers approach me tentatively as if I'm a stray dog. I avoid mirrors and my watch band keeps needing to get tighter. Still, I go to work and spend lunchtime at the zoo.

When I'm away, I trace the zoo in my mind.

There's the lion who sits on his heated rock; the harbor seals happily swimming in dirty water; the tiger who paces obsessively; the mother-and-son giraffes; several llamas who always eye me curiously because the zoo has few viewers in early February; and a dozen other oddball animal friends of mine.

I photograph each one and put the pictures in a small album. I take it with me to the giant medical center to help take my mind off the endless drip, drip, drip of chemo filling my veins.

■

My ex-girlfriend visits me twice a week and calls frequently. She brings meals neatly packed in Tupperware. Her current boyfriend says she's spending too much time with me, but she scoffs at this and kisses me like a sister whenever she leaves.

My brother calls each week from another time zone.

Two co-workers stop by my apartment on occasion, and we silently watch whatever sporting event is on TV.

Just before leaving my apartment, one co-worker thumbs through my photo album of animals.

"These are from our zoo," he says brightly. "My kid loves it there, just loves it."

■

After nearly eighty hours of chemo, I'm not better. I might be, my doctor says, but there are still spots on my left lung. Could be scars, could be tumors, he says. Tumors would be bad—that doesn't need to be spoken.

"I'm worried about it," the doctor adds. He's all business.

Three days later, he asks me to take a walk with him to meet a surgeon. The rest is a blur: I need surgery to remove the upper half of my lung. If the lung is clear, I'm fine. If there are tumors, there's trouble.

They can't do a biopsy.

They can't find out from a CAT scan.

There's no other choice.

I try to gather my breath. I cry. The surgeon says he understands. I drink water. I gain composure. I write down dates and times. Recovery will take a month. It's nasty surgery that's called something I can't pronounce or spell.

We won't know the results of the pathology report until six days after the surgery.

I stand looking out the surgeon's sixth-floor window. I can see the zoo's black bears enjoying the frigid weather.

"That's quite a view you have," I say.

The surgeon gets up from his desk and eyes the zoo as if he hadn't noticed it before.

"Yes, it is," he says. "I need to walk through there some day."

■

Here's what I do the day before my surgery: An hour before the zoo closes, I say—out loud—to each animal that I will get better. Then I imagine each animal wishing me luck and telling me they'll be thinking about me.

I'm speaking fairly loudly by the time I reach the remote area for camels. There's a wooden sign for summertime visitors, giving instructions about camel rides for children. My favorite is: "Obey the camel handler."

Three camels, with furry coats that look like bad rugs, glance vaguely in my direction. "Hello, camels," I shout. "I will get better."

I hear someone else's voice and jump.

It's a man's voice.

I turn around. There's a bearded worker zipping up his muddy brown jacket. He nods at me and repeats what he said, "Yes, you will."

With that, he leaves me alone.

■

Six days after surgery, I sit in a tiny room at the giant medical center to hear the results of the pathologist's report on my lung. I can't lift my left arm, and I scream to maneuver myself out of bed. A nurse has begun her twice-a-day visits to my apartment.

Waiting for the doctor, I stare at the pictures of the animals in my photo album:

The penguins, an emu, the porcupine . . .

Still no doctor.

The grizzly bears, a toucan, the bison . . .

Still no doctor.

The elephants, a zebra, the camels . . .

The door opens.

The black bears, a prairie dog, the tortoises . . .

Good news, the doctor says, all business. Then he smiles.

■

My hair has grown back. I'm in my sixth month of cancer remission. My doctor says I have an excellent chance to be cured some day—maybe four years, five years down the road, he says, all business.

I return to the giant medical center for chest X-rays, CAT scans, and blood tests every three months.

In a fingersnap, cancer could return. I met a cancer patient who told me that when your hair grows back everybody thinks you're better and forgets about your illness. He shook his head, then explained that his colon cancer had returned after two years of remission.

■

Linda McCartney died today, and I feel miserable. I'm a Beatles fan and I like Paul and everything. But, really, I'm upset that a very wealthy woman with every possible medical advance available to her still died of breast cancer.

I walk through the zoo to tell the animals what bothers me: Linda McCartney had the world's best doctors and still, she died.

I no longer say my thoughts out loud to the animals. It's August and crowds fill the zoo. Four camels, with kids riding them, plod around a dirt circle not much bigger than a pitcher's mound. I close my eyes and think: God, I know how difficult it is for a person to die.

I know. ❧

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