

Lust for Life

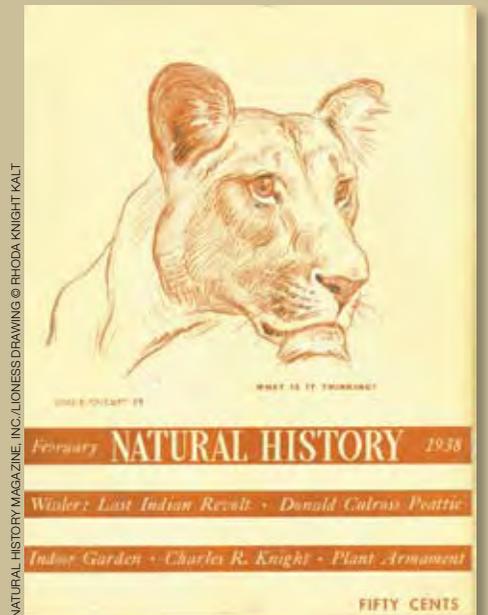
BY RICHARD MILNER

THROUGH HIS ART, CHARLES R. KNIGHT HAD A KNACK FOR CAPTURING ANIMALS—AND FOR RESURRECTING THEM AS WELL



On weekends during the 1950s, two adolescent science nerds from New York City's borough of Queens—Stephen Jay Gould and I—frequently caught the subway train to the American Museum of Natural History in Manhattan, or to the much more distant Bronx Zoo. I always brought a sketchbook and drawing pencils. Animals were our love, dinosaurs our passion, and two men named Charles were our heroes: Charles Darwin and Charles R. Knight. (Steve had an additional idol, Joe DiMaggio, whom he revered for his grace and excellence on the ball field.)

Darwin, a century earlier in England, had convinced the scientific world that animal species were not fixed and eternal, but had evolved over immense periods of time. He was a great scientist, but he could not draw to save his life. He envied the talent of his naturalist friends Thomas Henry Huxley and Alfred Russel



Tigers were among Charles R. Knight's favorite subjects, and Bengal Tiger and Peacock (1928), left, a favorite painting. Above: The artist's portrait of a young lioness at a zoo graced the February 1938 issue of Natural History, which contained his article "What Are They Thinking?" Knight wrote that "a keeper was moving about in the distance and she is watching him closely for fear he may approach and steal or molest her cubs."

Wallace, both of whom were accomplished sketch artists. When Huxley taught zoology, he required his students to make meticulous drawings of laboratory specimens. “There is not one person in fifty,” he wrote, “whose habits of mind are sufficiently accurate to enable him to give a truthful description of the exterior of a rose.”

Born in Brooklyn in 1874, eight years before Darwin’s death, Knight was an artist who not only drew wildlife with beauty and authority, but also opened a window onto prehistoric times. With his paintbrush he created vivid and convincing vistas of animals and landscapes no human eyes had ever beheld. For more than forty years, beginning in the 1890s, he innovated and dominated what much later came to be called paleoart.

During Knight’s Brooklyn childhood, fossil excavations in the American West—the stuff of sensational newspaper stories—were rapidly expanding human knowledge of Earth’s prehistoric past. From 1877 to 1892, the epic “Bone Wars” between rival American paleontologists Edward Drinker Cope and Othniel C. Marsh raged in Colorado and Wyoming—a battle of scientific titans that ultimately filled museums back east with the skeletons of stegosaurus, apatosaurus, and their kin. Eventually Knight would become the man who brought those fossil bones to life, through his drawings, paintings, and murals for the American Museum of Natural History and the Field Museum in Chicago.

Knight’s depictions of dinosaurs and early humans appeared in all the major magazines, from *The Century* to *Popular Science* and *National Geographic*. His images were endlessly reproduced and imitated in books, toys, comic books, and on the silver screen. My childhood chum Steve Gould, who became a renowned Harvard paleontologist, never forgot his debt to Knight. He wrote that the artist had had greater influence in establishing what extinct animals looked like than any scientist who

ever lived. In his book *Wonderful Life* (1990), Gould celebrated him with some hyperbole: “Not since the Lord himself showed his stuff to Ezekiel in the valley of dry bones had anyone shown such grace and skill in the reconstruction of animals from disarticulated skeletons. Charles R. Knight, the most celebrated of artists in the reanimation of fossils, painted all the canonical figures of dinosaurs that fire our fear and imagination to this day.”

Knight did not grow up drawing dinosaurs, however, as many children do today, because no one yet knew what they looked like. Instead, he was fascinated by living animals. In his autobiography, he recalled that his father would often read him uplifting bedtime stories. One night, little Charlie piped up, “Father, I’m tired of hearing about Jesus. Tell me about elephants.” Soon he was copying pictures of animals out of the dictionary and from illustrated bestiaries his parents provided.

Knight wasn’t satisfied, however, with copying photographs or drawings, but found it far more challenging and rewarding to draw from life. Only half-joking, he later claimed to have been born in the wrong place. In an unpublished autobiographical fragment, he grumbled: “I couldn’t help it, of course—but this Brooklyn business—Had anyone consulted me I might have picked some countryside with animals and birds and flowers and trees.” Though Brooklyn once had its share of forests and wildlife, by Knight’s

day they were long gone. But he was able to find inspiration in the American Museum of Natural History and at the zoo—first the Central Park Zoo and later the Bronx Zoo—just as Gould and I did so many years later.

His insistence on drawing from living animal models became a lifelong principle. “I never make any direct



Conservationist William T. Hornaday, the founding director of the Bronx Zoo, sits in his zoo office, which was incongruously decorated with hunting trophies.



VICTOR DEAK © RICHARD MILNER

use of photographs and I could not consent to do so,” Knight wrote, not wishing to share credit with a photographer. “My work is always strictly original and I use a photograph merely as a reminder of the real thing.” Each drawing (he sketched some 800 living species) captured the personality and mood of an individual rather than a “typical” representative of the species.

By the age of sixteen, Knight was earning a living as an artist. His animal illustrations began to appear in many popular magazines. He also landed his first and only salaried job at the J&R Lamb Studio, a stained-glass company on Carmine Street in Greenwich Village, Manhattan. Knight’s employers could not help but notice the young man’s special affinity for and interest in drawing animals, and encouraged him by assigning him church window designs that included biblically symbolic animals, such as lions, eagles, pelicans, or wolves.

Knight continued to develop his early-blooming artistic talent despite the fact that when he was six, his right eye had been severely damaged by another child’s thrown pebble, “thus,” as he wrote, “throwing a great deal of extra work upon my left eye, which was already both near-sighted and astigmatic to a marked degree.” As he reached young adulthood, Knight became increasingly unable to distinguish distant objects clearly, and knew that his eyesight was deteriorating.

For me of course it was a catastrophe for in my chosen line as an artist I naturally needed two good eyes and here I was attempting to do difficult and intricate work with only one poor organ at the best. Also I have no doubt that the accident contributed a great deal to my later nervous condition as my vision was always under a strain which reacted upon my entire nervous system.

His vision continued to deteriorate—exacerbated later by cataracts—so that for much of his life, Knight was legally blind. Somehow he persevered, refused to call attention to his handicap, and produced some of his greatest murals when

he could barely see at all—a feat of astounding courage and dedication. Finally he became totally blind, about two years before his death, in 1953, at the age of 79.

The American Museum of Natural History had opened at its present location in 1877. Knight’s father’s employer, the banker J. P. Morgan, was treasurer of the institution and gave the Knights privileged access there—even on Sundays, when it was closed to the public. Young Knight became a welcome visitor backstairs, where the taxidermists and exhibition builders were impressed with his drawings and allowed him to watch the skinning and preparation of animal carcasses for mounting. His time in the labs and workrooms of the



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Knight, here about thirty years old, paints the popular Barbary lion Sultan at the Bronx Zoo. Top: Knight’s 1906 sculpture of an African elephant head flanks the portal of the zoo’s old elephant house.



Knight puts the finishing touches on his clay model of Edaphosaurus, a sail-backed synapsid, or early relative of mammals. As an aid to his painting, he used small models to test how natural light would fall on the creatures and form shadows.

museum provided an informal introduction to the science of comparative anatomy.

During one of his frequent visits to the museum, in 1894, he was told that “there was a man named Dr. [Jacob] Wortman here yesterday, from upstairs in the Fossil Department, and he was looking for someone who might make him a drawing of a pre-historic animal.” After studying its fossilized bones and speaking at length with the paleontologist, Knight produced an accurate and strikingly lifelike watercolor likeness of the piglike *Elotherium*. As Knight related in his autobiography, it was to change his life forever:

Thus, in the most prosaic way imaginable I was introduced to a set of men whose interest and encouragement eventually opened up for me a momentous period in my life work, and created a whole new field of research and study into which I could delve to my heart's content. . . . Wortman was much pleased with my initial attempt, gave me more work to do, and later I met Henry Fairfield Osborn, then a professor at Columbia who was then taking over the senior position in the department of paleontology.

It proved to be a momentous meeting. The ambitious, autocratic Osborn, who would reign as president of the museum from 1908 to 1933, saw a great future for the talented young artist, and took Knight under his wing. In 1897, Osborn arranged

for Knight to spend a few weeks with his own paleontological guru, the legendary Edward Drinker Cope of the Academy of Natural Sciences in Philadelphia. Cope and his archrival Othniel C. Marsh of Yale had collected more dinosaur bones in the American West than all the other paleontologists put together.

Now aging, broke, and ailing, the reclusive naturalist lived in a Philadelphia brownstone packed with rocks, fossils, and books. Osborn wanted young Knight to visit Cope to absorb some of his brilliant interpretations of the way dinosaurs and other prehistoric creatures looked and behaved. A few weeks after those golden and historic mentoring sessions, Cope died, and Osborn and Knight (along with a small group of mourners and Cope's pet Gila monster) attended the funeral in Cope's fossil-packed house.

Knight began to build on Cope's sketches and ideas in his own artwork, which now focused on reconstructing dinosaur behavior as well as anatomy. One of the most famous paintings that resulted from Cope's tutelage was Knight's *Leaping Laelaps*, which depicted two battling carnososaurs as quick, ferocious, and even acrobatic—a different view from that held by most scientists of the time, who imagined all dinosaurs as stupid and slow-moving [see illustration below].

The New York Zoological Park (now the Bronx Zoo), which opened in 1899, provided another rich source of tutelage for Knight. From far-off tropics and Arctic tundra, a steady stream of animals arrived



In his classic 1897 painting *Leaping Laelaps*, Knight depicted fighting drytosaurus as fast-moving and acrobatic, a view of those dinosaurs suggested to him by the famed paleontologist Edward Drinker Cope.



Knight's clever device of a splash of sunlight on its massive head adds drama to an otherwise drably colored *Tyrannosaurus rex*.

there, rare and wonderful living models delivered practically at the doorstep of the wildlife artist from Brooklyn.

The zoo owed its creation to wealthy businessmen, members of the Boone and Crockett Club, who had been in the habit of hiring buckskin-clad guides to take them on hunting expeditions in the Canadian or American wilderness. To their credit, they realized that the continent's wildlife might well disappear in their own lifetimes—a view shared by their founding member and president, Theodore Roosevelt. They resolved to protect and breed wild animals, so that our national heritage could be preserved. In 1895, under a charter from New York State, they formed the New York Zoological Society to establish the zoo.

During Knight's early childhood, the American bison had been slaughtered to the point of near extinction as part of a horrific, genocidal government policy to starve and control Plains Indian tribes whose livelihood depended on the great herds. The Bronx Zoo's founding director, William T. Hornaday, had been chief taxidermist at the Smithsonian's National Museum in Washington, D.C. In that capacity, in 1886, he had traveled to Montana to “collect” a family of bison to be mounted in his museum before the species entirely disappeared. Riding the range, he was shocked at the innumerable skeletal remains of bison that littered the land, but saw very few

living animals. When he finally located some stragglers, he shot them and prepared their skins and bones for shipment to the Smithsonian. An orphaned calf, which he named “Sandy,” followed him back to camp.

Sandy became a celebrity in Washington. Crowds flocked to see her, and she became the first animal in Hornaday's new Department of Living Animals—which provided the beginnings for the Smithsonian's National Zoological Park (the National Zoo). Soon thereafter, Knight sketched a bison bull at the new zoo, and in 1901 the image was engraved on a ten-dollar note—now a prized collectible known as the “Buffalo Bill.” Later a United States postage stamp featured the same image. Sandy didn't last long, though, soon joining her taxidermied parents behind glass at the National Museum.

Hornaday resigned from the National Museum in 1890 owing to disagreements with the new Smithsonian director, and in 1896 was tapped to take charge of the new Bronx Zoo. In 1905, a small group headed by Hornaday, Osborn, and Roosevelt founded the American Bison Society at the zoo. They decided to purchase bison from various ranchers throughout the West to establish a breeding herd in the Bronx, and lobbied legislators for the creation of federally protected buffalo ranges on the Great Plains. Beginning in 1907, the zoo began shipping a few dozen bison back to preserves in Oklahoma, South

Dakota, and other western states. Today, 600,000 buffalo live in the American West, the majority of them in commercial herds. Many are descendants of the tiny herd of survivors bred in the Bronx.

The Boone and Crockett Club members lobbied legislators for severe restrictions on hunting, and built an ironic little museum at the zoo for their National Collection of Heads and Horns, which was dedicated “in memory of the vanishing big game of the world.” But the main purpose of the New York Zoological Society was to create an innovative park where mammals and birds would live comfortably in spacious pens and gigantic “flying cages,” amid the Bronx’s indigenous trees and glacial boulders. While the zoo was still in its planning stages, Hornaday even trumpeted to the newspapers that it would extend special services to “artists who are desirous of studying animal life”:

That the great animals may be sketched and painted . . . there is to be a studio in the lion house. Here, under a glass roof, artists may sit at all times. Such animals as they may wish will be brought in to them. A miniature railroad track will run from the rest of the buildings here, and in a special cage (into which they have been enticed) the kings and queens of the forest will be rolled to pose.

The railway tracks leading to the lion house were duly installed, but unfortunately, this innovative idea proved impractical and eventually had to be abandoned.

Around the turn of the century, many artists were em-

ployed in creating public pieces as part of the City Beautiful Movement, which sought to inspire and uplift visitors to American cities’ museums, courthouses, zoos, and civic centers. Knight was commissioned to produce sculpted heads of African elephants and zebras at the Bronx Zoo; those masterworks can still be seen on buildings now landmarked for preservation [see photograph on page 31].

During a decade’s residence in an artist’s colony in Bronxville, New York, Knight turned out many paintings of prehistoric animals for the American Museum of Natural History. When Osborn began to commission large murals, however, Knight found he would need a separate studio in which to work—one that might accommodate fifty-foot canvases. Thus, in 1916, he began what would become more than a year of wrangling and negotiations with the museum.

Osborn tried to lure Knight into working at the museum instead of building a separate studio, and offered to outfit one of the vacant exhibition halls. Knight, who was fiercely protective of his artistic independence, balked at the prospect of becoming a “normal museum worker.” In several long letters to Osborn, Knight’s wife, Annie, insisted her husband absolutely could not work in the museum for protracted periods. For one thing, employees from other departments would come by and offer their unwanted opinions and criticisms of the work in progress.

Finally, by the end of 1916, with pressure to do the

woolly mammoth mural for the Hall of the Age of Man, the Knights rented a deserted factory in Mount Vernon, New York. There, Charles produced the mural, which Osborn hailed as his “magnum opus” [see illustration below]. In all, Knight would spend close to thirty years painting monumental murals for the museum.

As he developed his method of working, Knight abandoned the enormously taxing procedure of drawing and painting murals on huge canvases on the studio floor. Instead, he labored over small oil sketches of about four by three feet. By this time he was already legally blind and had to view his work from only inches away. Once approved, the small paintings were then copied by assistants onto the immense wall canvases, employing a grid system for accuracy.

Knight would only climb the scaffolding near completion to put in fine details; he could not make them out at all from the floor.

Early on, Knight had adopted a method that insured startling realism when he painted shadows for his figures. He started with miniature models of the mounted fossil skeletons and then added clay muscles and skin. Finally,



Neohipparion, a three-toed horse that lived between about 16 million and 5 million years ago in North and Central America, gallops through one of Knight’s paintings.

he would move the finished sculptures outdoors into the sunlight to observe how the shadows fell at different times of day, and duplicate the effect in his paintings.

Despite his prodigious output, Knight was an utterly inept and indifferent businessman. With quiet confidence in his own mastery of his specialty, he stubbornly maintained his prized independence—at considerable cost to

A procession of woolly mammoths in a Pleistocene snowscape near France’s River Somme forms part of a 1916 mural at the American Museum of Natural History. Knight’s patron, paleontologist Henry Fairfield Osborn, longtime president of the museum, called it the artist’s “magnum opus.”



his bank account and peace of mind. More than once he exhausted himself completing major murals for the museum, only to wind up in debt.

Knight also had to deal with Osborn's unrelenting attempts to control his artwork. He welcomed Osborn's instruction and corrections regarding scientific accuracy, and sometimes even accepted art direction from him regarding color and composition. But he absolutely would not tolerate Osborn inviting other artists and consultants to review his work. Conflict between artist and patron also arose in 1925 with Osborn's plans to launch a new



In *Stormbound* Knight depicted vulnerable Neanderthals, whom he sometimes described as "poor little devils" who struggled mightily to survive the raging snowstorms of Europe's last ice age.

Dinosaur Hall that could display the museum's world-class collection of fossils. Knight refused to do sketches piecemeal, insisting that the hall be designed as a single integrated work of art. When Osborn could not raise

the necessary funds, Knight sought work elsewhere. The possibility of a commission to create a series of murals and paintings for the Field Museum in Chicago provided an unexpectedly lucrative opportunity.

Desperately in need of the assignment to get out of debt, Knight went to Chicago to meet with the museum's trustees. But just when he thought his financial worries were over, a few of his prospective sponsors, who had welcomed him with such warm enthusiasm, suddenly morphed into art directors, their only qualification being the power of their wealth. Knight's proposed "decorative," "mysterious" hues for their new Dinosaur Hall were too muted, they said, and if they were to approve him for the project, he needed to brighten his palette.

According to the account passed down to Knight's granddaughter, Rhoda Knight Kalt, Knight immediately turned on his heel, picked up Annie at their hotel, and boarded the next train back to New York. Knight's feisty and beautiful daughter, Lucy, then in her mid-twenties, was outraged when her parents returned home empty-handed. She immediately headed for Chicago and unceremoniously confronted the board. "Don't you realize that when it comes to prehistoric murals, you have turned away the modern Rembrandt?" Committee members exchanged sheepish glances. "Young lady," came their chastened reply, "please go back to New York and tell your father that he can paint the halls any way he wishes."

So after a lifetime in debt, Knight finally made a big score in 1926—a commission of \$139,000 to design and paint the Field Museum's Dinosaur Hall. Osborn was at first petulant, angry, and resentful that Knight would take his work elsewhere, but eventually he recovered his composure and wished the artist well with the project. Knight produced twenty-eight paintings for the Field Museum over the next four years.

Lucy's intervention in Chicago had saved the day, but the rejoicing was comparatively short-lived. The family's story is that Knight promptly turned over most of his money to a trusted, conservative businessman to invest. The man was a staunch Republican who feared that the inauguration of Franklin Delano Roosevelt in 1933 would usher in a socialistic regime that would destroy the American economy. He sold all Knight's stocks and investments at bargain-basement prices. Annie was devastated and took to her bed with depression. When she begged her husband to confront his friend about recouping some of the money, he shrugged off the loss of his hard-won fortune. "I'm too busy to get involved in money disputes," he replied. "I have to *paint*."



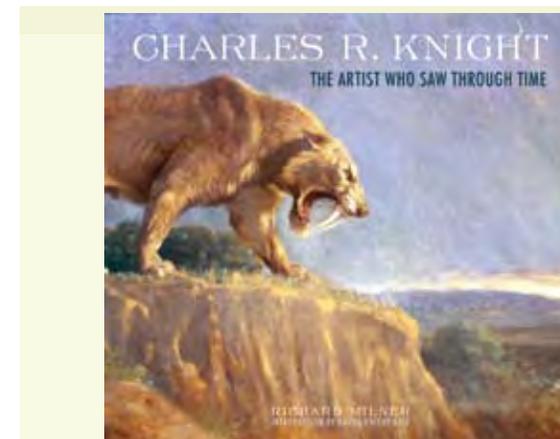
In 1927, in the midst of the work on the Chicago murals, anthropologist Henry Field, a nephew of Field Museum president Stanley Field, invited Knight and his family to join him in visiting the decorated Paleolithic caves in Les Eyzies, France, and Altamira, Spain. Skilled artists from prehistoric times had left drawings of extinct European mammoths, reindeer, horses, and rhinoceroses on the cave walls during the last ice age.

Knight had previously researched the cave artists and had completed his classic American Museum mural of the Cro-Magnon painters of Font-de-Gaume, France. But having read about the artists of 17,000 years ago was a far cry from entering their caves and standing on the spots where they stood, overlooking the river valley where mammoths and woolly rhinos once came to drink. "Had I been there I too might have seen them," he recalled, "a thought which almost took my breath away."

That tour of ancient wall art, conducted by the prehis-

The artist's New Year's card for 1922 celebrates the American Museum's new building with a haughty Triceratops coachman driving a team of high-stepping, graceful brontosaurus. The banner flying over the carriage reads "At Last Our Housing Problem Is Solved," above which is inscribed "The Dinosaur Family."

torian Abbé Henri Breuil, deepened Knight's appreciation for our Paleolithic ancestors. As a child, Knight had been caught in New York City's killer blizzard of 1888, a trauma he never forgot. As he contemplated the hardships early humans had endured to survive the ice age, he empathized with them, sometimes to the point of tears. And, of course, he was knocked over by their skill at drawing animals. Indeed, he copied the mounds of fat atop the mammoths' heads, along with the prominent shoulder humps, depicted on the cave walls—soft features that the animals' bones had not revealed. He trusted the accuracy of the Paleolithic painters' observations. After all, they were the first naturalist-artists, very much like himself.



A contributing editor at *Natural History*, **Richard Milner** (seen at age 13, far right, with his boyhood pal Stephen Jay Gould) is the author of *Charles R. Knight: The Artist Who Saw Through Time*, a lavishly illustrated book just published by Abrams. His previous books include *Darwin's Universe: Evolution from A to Z* (University of California Press, 2009). In addition to writing about Darwin and evolution, Milner has created a one-man musical, *Charles Darwin: Live & In Concert*, which he has performed at such world-wide venues as the American Museum of Natural History, the Canberra Skeptics, the Hygiene-Museum in Dresden, the Edinburgh Science Festival, the Linnean Society of London, and even on a cruise ship in the Galápagos Islands. His website is www.darwinlive.com.

