On a bright spring morning in 1994, two graduate students hovered over the computer server housed within the concrete walls of the curatorial room at the Museum of Paleontology at the University of California, Berkeley. They high-fived as high-resolution images of a Dilophosaurus and data on fossils flashed onto the workstation. Months earlier, the museum’s director had been dubious about their technological experiment, thinking that no one would care about it or even notice. Now, none other than Vice President Al Gore had scheduled an appointment to dial into the project via Berkeley’s barely-utilized Internet backbone. At the last minute, Gore was called away due to pressing negotiations in the Middle East. The two budding archeologists never got the chance to guide the vice president through online images of ancient crocodile teeth, mastodon jaws, and other antediluvian delights. But Rob Guralnick and David Polly had achieved a milestone on the nascent information superhighway: they had created the world’s first museum website.

To Guralnick and Polly, natural science museums were a perfect laboratory for online experimentation. Like museums, websites could intertwine scholarship, specimens, and public education. But unlike most museums, websites could be visited free-of-charge.

“The field of paleontology was geared toward sharing data for free. We wanted it to be available and intellectually interesting to everybody. There was no concept of selling anything or making a profit on the Internet back then,” recalls Polly, now a professor at Indiana University. “The goal was the democratization of information and Rob [Guralnick] coined the term ‘Museum without Walls.’” This is why the site attracted not only the vice president’s attention but was featured at the second World Wide Web conference. It was considered a breakthrough use of the Internet.

American museums, as this book has documented, have always responded to emergent technologies. Yet in the 1990s, as handfuls of individuals continued to play around with museum websites and virtual exhibition spaces, most institutions remained timid, if not overtly hostile to the Internet. “Museum professionals worried about the role of the ‘virtual’ museum online,” explains multimedia expert Selma Thomas. “Would it compete with bricks-and-mortar museums for visitors, funds and programs? ... Would it demean the value of the collections by circulating tiny pixilated images? Could museums, with their commitment to ‘real’ objects, protect the authenticity of those objects while developing Web-based programming? And what about visitors? Would they want to see the real thing if they could see digital versions of the collections online?” As society was merging online,
the museum field remained skeptical, feeling it needed to defend intellectually and protect financially its legacy of buildings, collections, and exhibitions.

When the first edition of Riches, Rivals and Radicals went to press in April 2006, this ambivalence persisted. Since then, however, the field has acknowledged the Internet’s potency to connect new generations of users to museums in new ways. Tablets and smartphones with their vast menus of apps, and social media sites like YouTube, Facebook, and Twitter, are now so common in our daily lives that it’s hard to imagine that in mid-2006 most didn’t exist. Museums are now taking advantage of these tools to promote and extend their missions. The question becomes more nuanced: What is the role of the museum when faster, smaller, interconnected devices have changed the way individuals all over the world obtain, negotiate, and relate to information, objects, culture, and each other?

In December 2006, the Exploratorium became the nation’s first museum to upload a video to YouTube. In this wonky webcast excerpt, two scientists demonstrate what we can learn from infrared heat cameras, an unintentional retrogression to the mid-20th century “Let’s Explore Science” television broadcasts. Three months later, San Jose Museum of Art began uploading clips related to contemporary art exhibitions, eventually reaching YouTube’s “top favorites” with “Road Trip,” a chronicle of two museum educators promoting the lost art of purchasing, inscribing, stamping and snail-mailing a travel postcard. Sharing content through popular sites like YouTube allows museums to reach much larger audiences than ever before. For example, the YouTube upload of “Known Universe,” a soaring journey through stars and quasars created by the American Museum of Natural History in collaboration with the Rubin Museum of Art, attracted almost nine million views in its first year, more than twice the number of annual visits to both museums.

In December 2007, The Brooklyn Museum set up the nation’s first museum Facebook page. The goal, wrote Shelley Bernstein, the museum’s chief of technology, in the first post, was to offer a “much more dynamic environment” where visitors could use social media to exchange thoughts, learn about events, and share images of their favorite artwork from museums across the globe. Within six days, the site had 1,000 friends. A few months later, museums entered the “twitterverse” when Brooklyn-based @MuseumNerd began to tweet from various New York City exhibits, circumventing official museum rhetoric and established critics. @MuseumNerd quickly attracted tens of thousands of followers who openly share information, trade opinions and otherwise attempt to stay on top of international museum activity.

By 2012, museum-related blogs, pages, posts, likes, tweets and comments reached well into the millions. The high volume of traffic across social media platforms challenges the museum establishment to relinquish its authoritative voice and let others add ideas.
and offer interpretations of its work, building on each other and spinning off even more content. The rapid-fire exchanges indicate the public’s ongoing fascination with museum buildings, exhibitions, and collections, albeit through new digital communication systems.

The vision initiated at the Museum of Paleontology to use the Internet to provide free online access to collections and data has advanced considerably. In 2008, The Walters Art Museum in Baltimore showed the power of digital access when it unveiled its Archimedes Palimpsest project. The Archimedes Palimpsest is a 13th-century prayer book whose pages contain two erased treatises by the ancient Greek mathematician that exist nowhere else. The palimpsest arrived at the Walters severely faded, stained and moldy, yet bearing traces of an alluring mystery. For ten years, the Walters’ conservators and curators worked to reveal the hidden texts via a special imaging technique. The museum then released the treatises on the Web. As curator William Noel explains on the project’s website: “What was erased text, in terrible condition, impossible to access, and yet foundational to the history and science of the West, is now legible, and instantly available for free...” No one has to travel further than the nearest computer screen to mine in detail a one-of-a-kind mathematical treasure.

For a nominal price (and sometimes even for free), we can even pull a digital museum right out of our own pocket. In Spring 2010, the Hirshhorn Museum and Sculpture Garden launched the nation’s first museum iPhone app, which augmented the travelling exhibition “Yves Klein: With the Void, Full Powers,” with maps, high-resolution images, video, audio, and quotes from the artist. A few months later, the Art Institute of Chicago unveiled its French Impressionism app, downloadable across different kinds of mobile devices, and providing vast information, including narrated tours, of one of the world’s largest collections of Impressionist and Post-Impressionist art, all formatted for a tiny screen.

Today, researchers and curious web surfers alike can curate their own journey through myriad museum databases and apps. Without stepping into a museum, they can race from images of rare bird fossils at the Idaho Museum of Natural History to a three-dimensional tour of artwork at the National Art Gallery in Singapore or Shepard Fairey’s iconic Barack Obama “Hope” campaign poster, now in the collection of the National Portrait Gallery. Within seconds, they can then broadcast their thoughts to the world.

As the number of virtual museum uses and users grows, museums are changing their internal structures to try to keep up. While downsizing traditional curatorial and educational departments, some have created fulltime staff positions charged with staying on top of technology trends, such as Digital Communications Manager at the Denver Art Museum and Social Media Strategist at the Field Museum of Natural History. Of course debates about museums’ online identity persist. How deeply will digital technology change the way museums operate? “I worry that this virtual push may be leaving a lot of people out of the loop,” says Scott Carlee, Curator of Museum Services for the Alaska State Museums in Juneau. “What about volunteers who aren’t part of the blogosphere but are
vital to maintaining all the precious small and quirky community museums spread across our nation? What about the objects themselves: a 19th-century Eskimo mask based on a shaman’s first vision experience, clean-up materials from the 1989 Exxon Valdez oil spill. The Internet is a great tool, but real objects make stories come alive.” Or as sociologist Andras Szanto frames the gadget-enabled museum visit: “A smartphone is a cool and quick way to find the great blue whale or The Garden of Earthly Delights, but what’s wrong with getting lost in a museum?”

As museums continue to find their way around an increasingly digital world, worries about money have compounded. The economic downturn that began in late 2008 severely impacted them. Sliced budgets meant that few objects could be cared for as lovingly as the Archimedes Palimpsest (whose restoration was paid for by the private donor who happened to own it). And while museums expanded efforts to make collections available online, operating deficits tempted some institutions to sell off real objects as, once again, deaccessioning controversies made headlines. Likewise, since overbuilding and real estate loan defaults contributed to the bust, it should come as no surprise that the museum building boom of the prior decade came to a near halt. Between 2009 and 2011 over 20 museums—including the Fresno Metropolitan Museum of Art, Las Vegas Museum of Art (and the city’s Liberace Museum), and Gulf Coast Museum in Largo, Fla.—closed in communities hit hardest by the real estate market plunge. Even in relatively well-off areas, institutions such as San Francisco’s Asian Art Museum, New York’s American Folk Art Museum, and Brooklyn Historical Society came dangerously close to defaulting on loans. By the end of 2009, nearly every museum in the U.S. had cut budgets between five and 20 percent, laid off or furloughed staff, canceled or scaled back exhibition plans, or delayed a capital project.

But the museum field, with its characteristic pluckiness, continued to think ahead. Directors, trustees, staff and volunteers at all levels have pushed for innovative solutions to economic stress, including new income sources and administrative structures, and greater connections to their millions of fans. One tried and true solution has been the blockbuster exhibition. In New York in the summer of 2011, people formed lines that wrapped around the block, waiting to experience a multimedia exhibition of the breathtaking couture of British fashion icon Alexander McQueen at the Metropolitan Museum of Art. Families stood in line at science museums in Philadelphia, Seattle, and Chicago to come face-to-face with Lord Voldemort’s flowing black robes and weave their way through other iconic Harry Potter movie sets and props. Another way to bring in audiences has been specialized programs that tailor museum offerings to homeschoolers, tweens, children with special needs, church groups, seniors, even dog owners. There is no question of the appeal and public benefit of these kinds of stock-in-trade museum offerings. Yet there is more to be done.

Digital technology breaks down matter into streams of data that can be combined and
manipulated to yield unexpected creations. It allows users to learn what they want, when and how they want to. It empowers them to participate in dialogues with others while remaining detached and anonymous. It is fluid and instant. Museums, on the other hand, are cumbersome edifices set squarely in a time and place. They began as collections of the richest individuals, meant to communicate power and glorify wealth. In the United States, museums transformed into civic spaces that sought to tell a patriotic story of American progress and innovation, evolving alongside other technologies. Their role changed in the 1970s, as they increasingly expressed the nation's pluralism and began to encourage audiences to interact with their objects and their messages. They became beacons for cultural tourism and centers for civic pride and revitalization.

The challenge for museums in the coming decades will be to harness the new forms of thinking and knowledge being created digitally while remaining true to their origins, embedded in their communities, attuned to the long span of cultural and scientific creation, offering face-to-face encounters in tangible spaces that speak to the wide range of human experience. What the digital realm may teach museums is the importance of better integrating these attributes. The millions of objects and images exhibited or stored in museums tell a fascinating, if confusing tale. Digital technology can and should go far beyond showcasing museum possessions or eliciting visitor commentaries. It can provide a path toward new assemblages of knowledge, a means for helping museums understand and redefine themselves, so that society can do the same.

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4. Personal Correspondence, @Museum Nerd, August 2011.


7. Personal Correspondence, Scott Carlee, October 2011.