Blended Object Interactives

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Introduction

Inside the traditional toolbox that exhibition designers bring to the invention of new gallery experiences, one finds discrete classifications of items, each in separate drawers – such as object displays, interpretive panels and labels, linear media elements, and the broad category of experiences typically referred to as interactives. In a growing number of museum contexts, deploying and arranging these discrete components has come to be the central process of exhibit design.

In this article, we argue that the rigid classification of these tools is not only limiting, but casts a pox on innovation. Authentic social engagement, multisensory exploration, and making meaning in the exhibit world need to transcend – like many parts of the human experience – those artificial boundaries we tend to place around them for convenience. What happens when we retain the value of each of these traditional techniques, but erase their limiting boundaries, and any conventional expectations about how we are supposed to use them?

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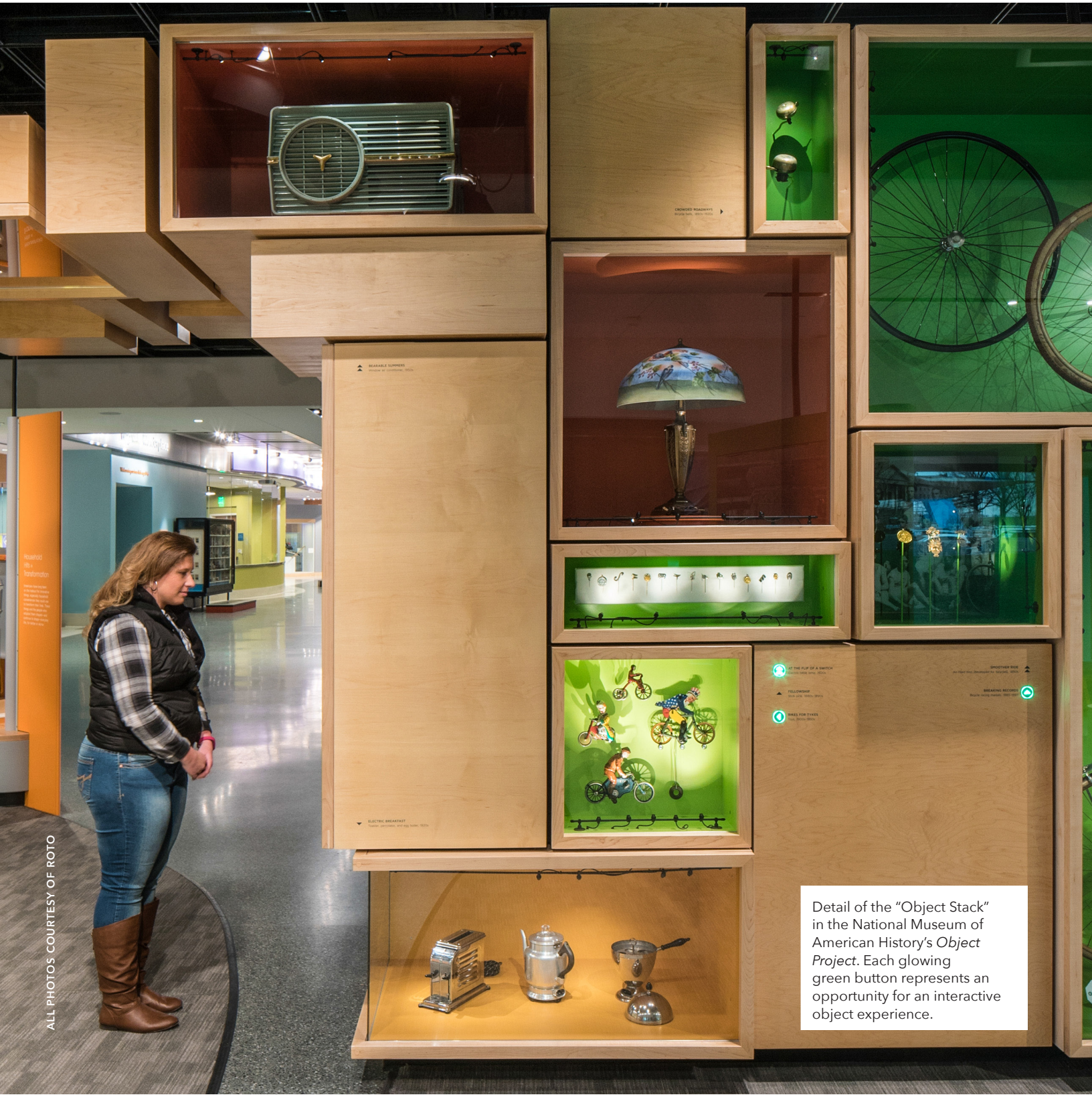
Blurring Lines

As a firm that specializes in the development, design, and execution of interactive experiences and environments, we have long been frustrated by the artificial boundaries separating traditional museum design tools, and believe that blurring these lines can lead to interesting and promising visitor experience outcomes. Over the course of several years, Roto has worked to identify opportunities within multiple projects to investigate these possibilities, and the case studies that follow showcase the results of some of these experiments. They are not meant to be definitive solutions, but tentative forays into what might be possible.

Consider the "object display" and the "interactive" – two rather different functional elements that usually have very different purposes. An object display is meant to secure an artifact, allowing visitors



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Detail of the "Object Stack" in the National Museum of American History's *Object Project*. Each glowing green button represents an opportunity for an interactive object experience.

to examine it passively while providing a structure upon which to affix varying amounts and types of interpretive text. An interactive is often used to interpret, through active visitor manipulation, content that may be hard or impossible to convey through a static object display or text panel. An object display, most generally, is something visitors look at while an interactive is something visitors do. The two are separated physically and temporally in the visitor experience, such that when a user is engaged with one of them, they cannot simultaneously be engaged with the other. But what if there were no distinction between the object display and the interactive? Can there be such a thing as an "interactive object display," and if so, what would it look like and how would it benefit the goals of exhibition design?

Or, dispensing with categories altogether, what if the structures we designed to safely house objects for visual inspection were inherently multisensory and responsive? That is, what if the casework and displays shared some qualities we normally associate with "interactivity"? This is by no means the only blurring of the lines that we advocate for the future of museum exhibition design, but we will spend the rest of this article exploring this one concept using some recent examples of what we call the "blended object interactive."

A blended object interactive seeks to combine the compelling authenticity often inherent in artifact displays with the responsiveness, supplemental information, and sense of surprise made possible with well-designed interactive elements (digital, electromechanical, or other). We feel the mashup of these two typically distinct categories of exhibition design can amplify a visitor's curiosity by providing a meaningful payoff for their engagement. That reward – whether in the form of a gasp of delight when an artifact comes to life, or the "aha" moment that occurs when a previously unseen aspect of the artifact is illuminated – can dramatically enhance interpretive value. Blended object interactives also have the capacity to increase dwell time by encouraging visitors to look more closely at the objects on hand.

This object-based experience, then, called for a new breed of highly interactive techniques that could encourage visitors to look closely at familiar items they might readily pass by in another context.

Case Study: *Object Project* at the National Museum of American History (NMAH), Washington, DC (opened 2015)

Object Project is the signature public experience in the heart of NMAH's west-wing renovation, which transformed half of the museum's first floor into a series of highly interactive exhibitions focused on innovation and creativity. It was conceived of as a "third place," neither a traditional exhibition nor a purely public space but a learning-centered combination of the two, dedicated to helping visitors understand the nature of the museum's object collection and what objects can teach us about the past. While most exhibitions at NMAH feature artifacts that have esteemed provenance or figured prominently in important historical events, *Object Project* presents visitors with, as its tagline says, "everyday objects that changed everything," and asks them to explore the stories these often humble items can tell us about American history and culture.

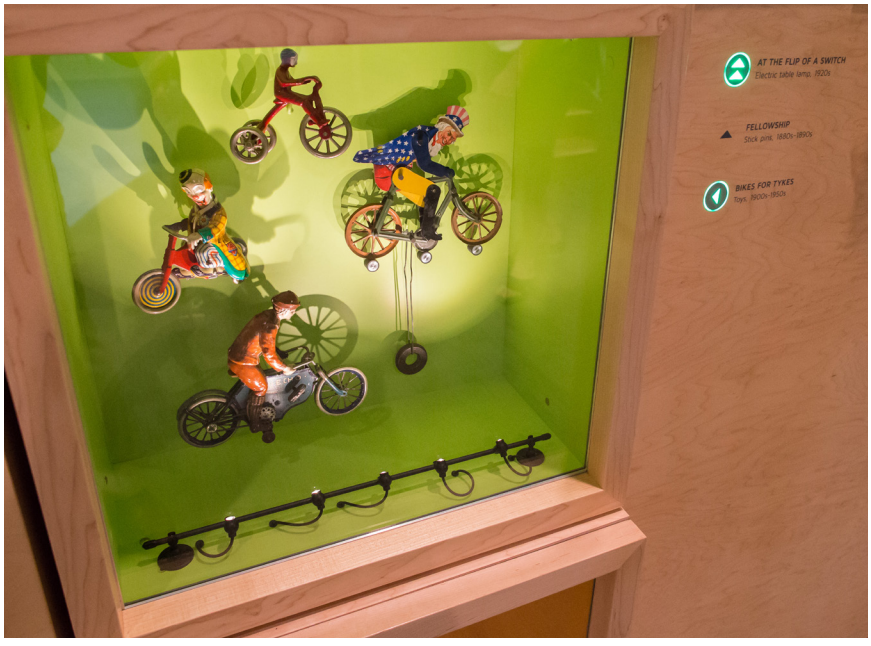


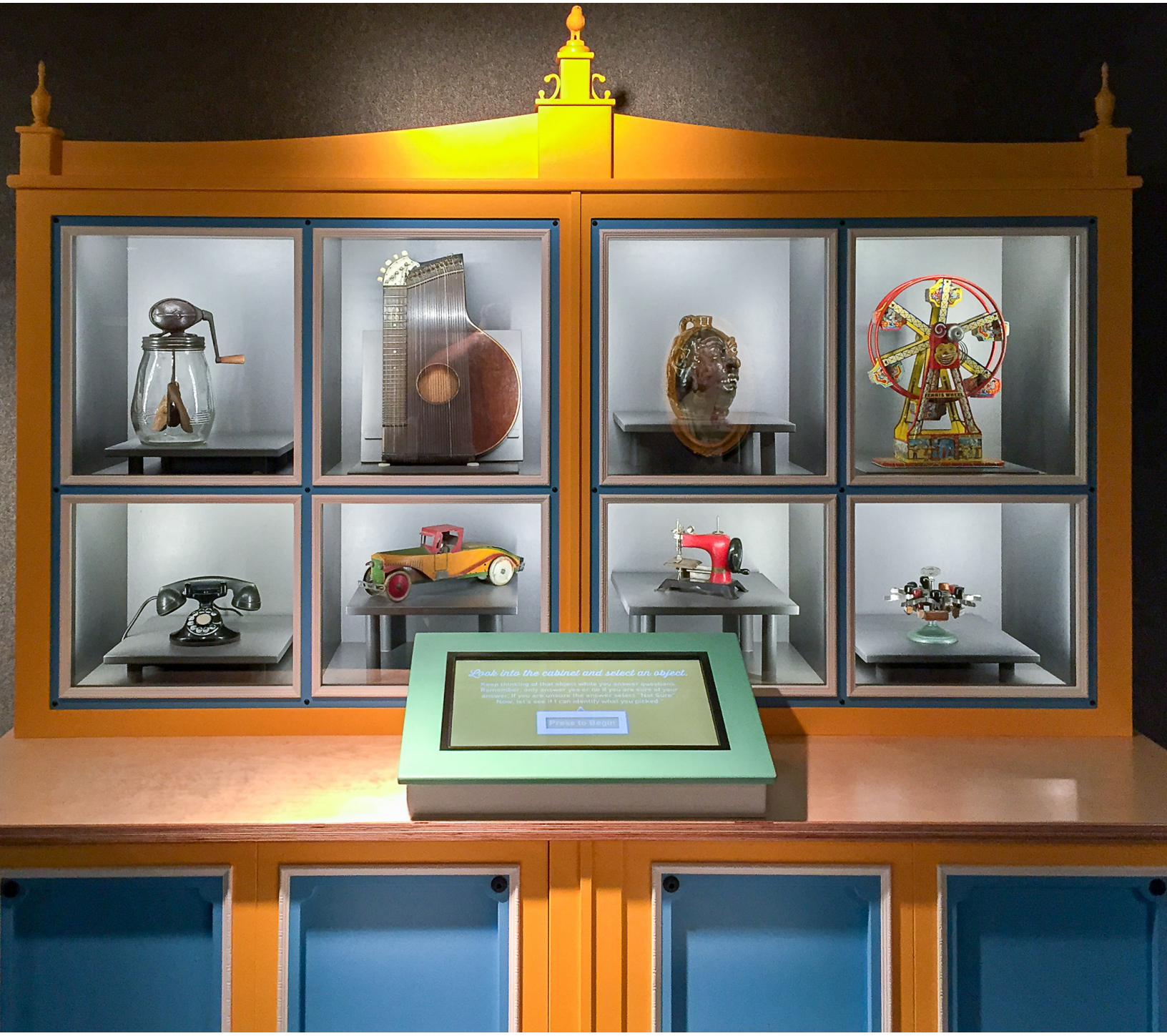
fig. 1. The wheels of a whimsical bicycle whirligig spin when visitors activate the adjacent button.

Working together, Roto and NMAH decided early on that one of the primary goals of *Object Project* was to develop observational skills in its visitors. This object-based experience, then, called for a new breed of highly interactive techniques that could encourage visitors to look closely at familiar items they might readily pass by in another context. To facilitate this act of close examination, we developed a series of very simple, electromechanical "effects," each triggered by an elegant, touch-triggered button built into more than 50 of the over 200 custom cases that make up *Object Project*'s central icon – the "Object Stack" (intro image). While *Object Project* features a wide range of interpretive object approaches – from the use of simple, touchable, education collection objects to custom software interactives (including a gesture-based experience that allows visitors to see themselves "try on" a multitude of textile artifacts that would otherwise be too fragile to display consistently), the project team ultimately decided that blended object interactives, with their ability to put the visitor's close observation of objects front and center, was where we wanted to place the bulk of our efforts.

These effects include the authentic sound of an antique toilet flushing which accompanies a real toilet on display; a slowly rotating platform that allows visitors to see the intricate, customer-facing engravings on the back side of a cash register that would have been obscured or hidden completely in a traditional case; and a focused spotlight that fades up while general case lighting fades down to illuminate the underside workings – perhaps otherwise unnoticed – of a vacuum cleaner. As visitors peruse the Object Stack, they encounter this same button repeatedly, quickly learning that its glowing green outer rim signals an opportunity for engagement, a little piece of magic.

According to Emma Grahn, Program Manager at NMAH and former Lead Facilitator for *Object Project*, evaluation has shown that visitors find the buttons engaging, and that the effects they generate encourage closer inspection of the featured objects and the development of observational skills. She noted, though, that some effects are more effective than others at illuminating the story of an object. If not used properly, they can become simple gimmicks that fail to help interpret the object in any meaningful way. For example, one button triggers a small motor causing the wheels of a bicycle whirligig to spin as its rider peddles merrily along (fig. 1). While entertaining, the effect doesn't tell visitors anything about the object they couldn't deduce otherwise.

fig. 2. The interactive "Talking Objects" display case in the family gallery at the Columbus Museum is themed to resemble a piece from the museum's decorative arts collection.



Case Study: *Transformations* at the Columbus Museum, Columbus, Georgia (opened 2015)

Within *Transformations*, the family learning gallery at the Columbus Museum, Roto designed, built, and installed an exhibit called "Talking Objects." It combines an interactive game of "Twenty Questions" with a changeable, multi-object display case themed as a whimsical china cabinet, inspired by those found in the museum's decorative arts displays (fig. 2). As visitors approach the exhibit, they encounter eight varied objects pulled from the museum's diverse collections. Each is displayed in an individually illuminated niche within the cabinet. An adjacent touchscreen prompts visitors to select and remember an object from the case. The object case then asks a series of simple yes or no questions such as, "Is your object a toy?" or "Is your object made of metal?" that encourage visitors to look closely at their chosen object and infer information about its use, materiality, age, or other qualities.

As visitors respond, certain niches go dark – signifying that the display's intelligent "brain" has eliminated them from consideration – and narrows the field to only those objects still illuminated. Once the display thinks it knows a visitor's chosen object, all other niches go dark and the touchscreen asks, "Is this your object?" Upon answering yes, the object surprisingly comes to life and describes itself in a short, humorous monologue delivered in an appropriate character voice while additional information is displayed on-screen.

Education staff in *Transformations* report that the exhibit is very popular with multigenerational family groups, and often prompts long dwell times as families play together through multiple rounds – simultaneously learning the specific history of individual objects while continuing to build their general observation skills. Curators also report being pleased with the exhibit as it provides them with a flexible way to feature quirky, unusual, or long unseen items that might not easily fit into one of the museum's ongoing exhibitions. To enable the museum's staff to rotate objects, we designed an easily updated technology platform that allows them to upload new monologues, images, text descriptions, and object attributes without the need (or expense) of an engineer or exhibition developer.

How could each fascinating cultural story and the delicate craftsmanship of each mask not be swamped in a gallery full of them?

Case Study: *Stories of Nature & Culture* at the Milwaukee Public Museum, Wisconsin (unrealized)

In 2016, along with several other design firms, Roto was invited to help reimagine the Milwaukee Public Museum's extensive natural and cultural history collections in the context of a speculative new facility. *Stories of Nature & Culture*, one of the galleries we worked on, was intended to highlight the interplay between animals – illustrated through the museum's vast array of taxidermy – and humans' long-standing fascination with the representation and embodiment of animals through masks. Although the masks in the museum's collection are amazing, we initially struggled to figure out how to engage visitors. Why should they care? How could each fascinating cultural story and the delicate craftsmanship of each mask not be swamped in a gallery full of them?

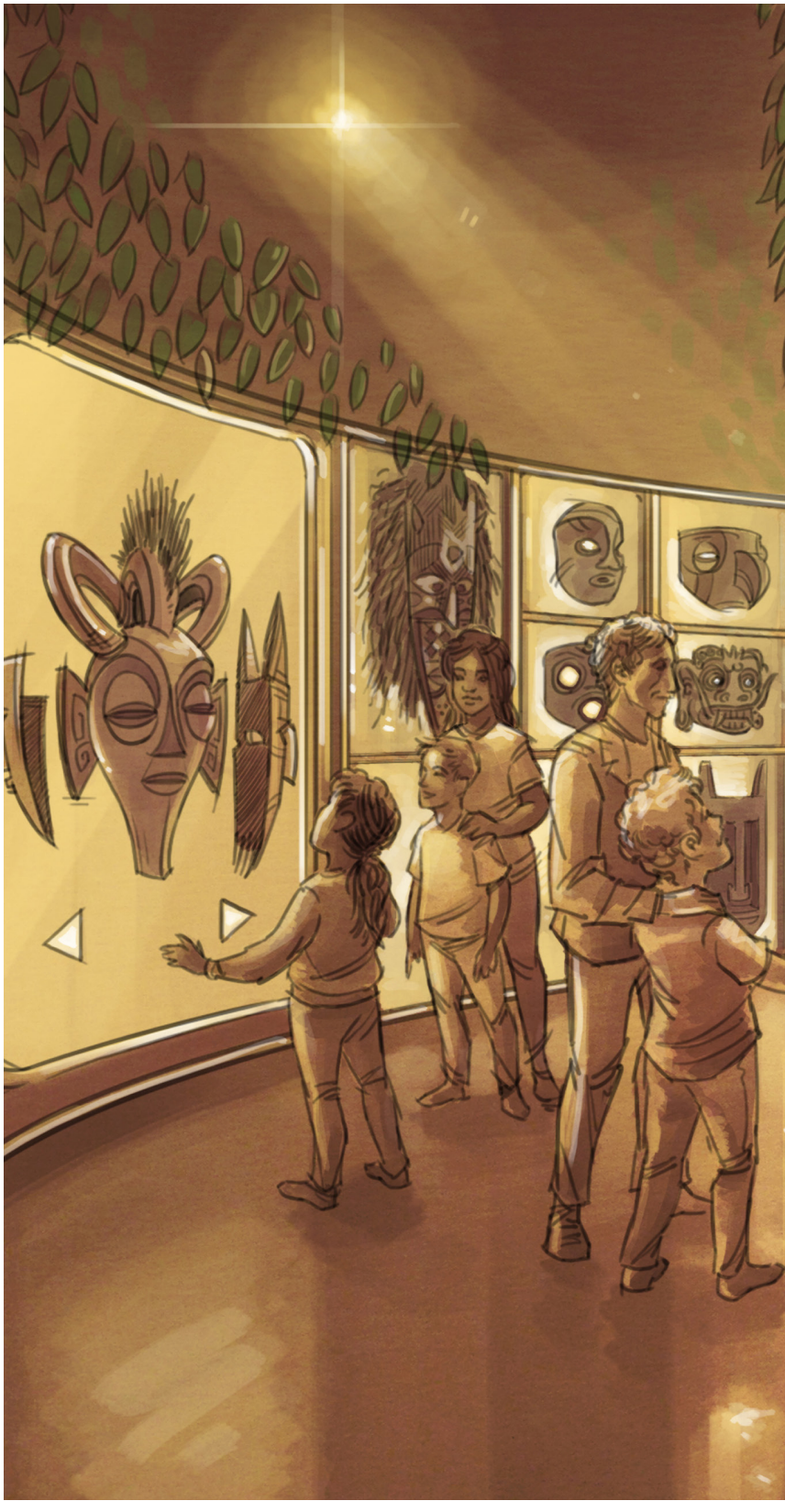
Inspired by their often iconic silhouettes, we decided to subtly backlight each mask in its own case so that visitors, rather than being overwhelmed by the collection's visual cacophony of materials, colors and textures, would instead be captivated by a gallery full of mysterious, glowing shapes and, hopefully, be driven by curiosity to explore further. To unlock the silhouette and see a mask in all its detail, a visitor would use one of several "oracle" stations where they would be assigned, possibly through gesture recognition or maybe even a personality quiz, their very own personal mask and given its location among the hundreds in the massive display (fig. 3). Now invested in the story of a single, particular object, guests would embark on a scavenger hunt through the gallery to find it and, once located, trigger a sensor that would dramatically reveal the previously silhouetted mask and its adjacent interpretation.

What About the Naysayers?

Our foray into the development of more engaging, animated object displays came with certain risks and concerns, which we had to address through the same habits of technical diligence and iterative development process (e.g. rigorous prototyping and audience testing)that make for the best kinds of museum exhibits in general.

Three main concerns we faced were object safety, operational durability, and expense.

Object safety. Many objects inside secure cases sustain more damage over time by exposure to light than any other physical effect. It is not hard to design casework that remains dim until activated through visitor input (e.g. touch-sensitive dimmers), resulting in, through the inclusion of "interactivity," dramatically less cumulative



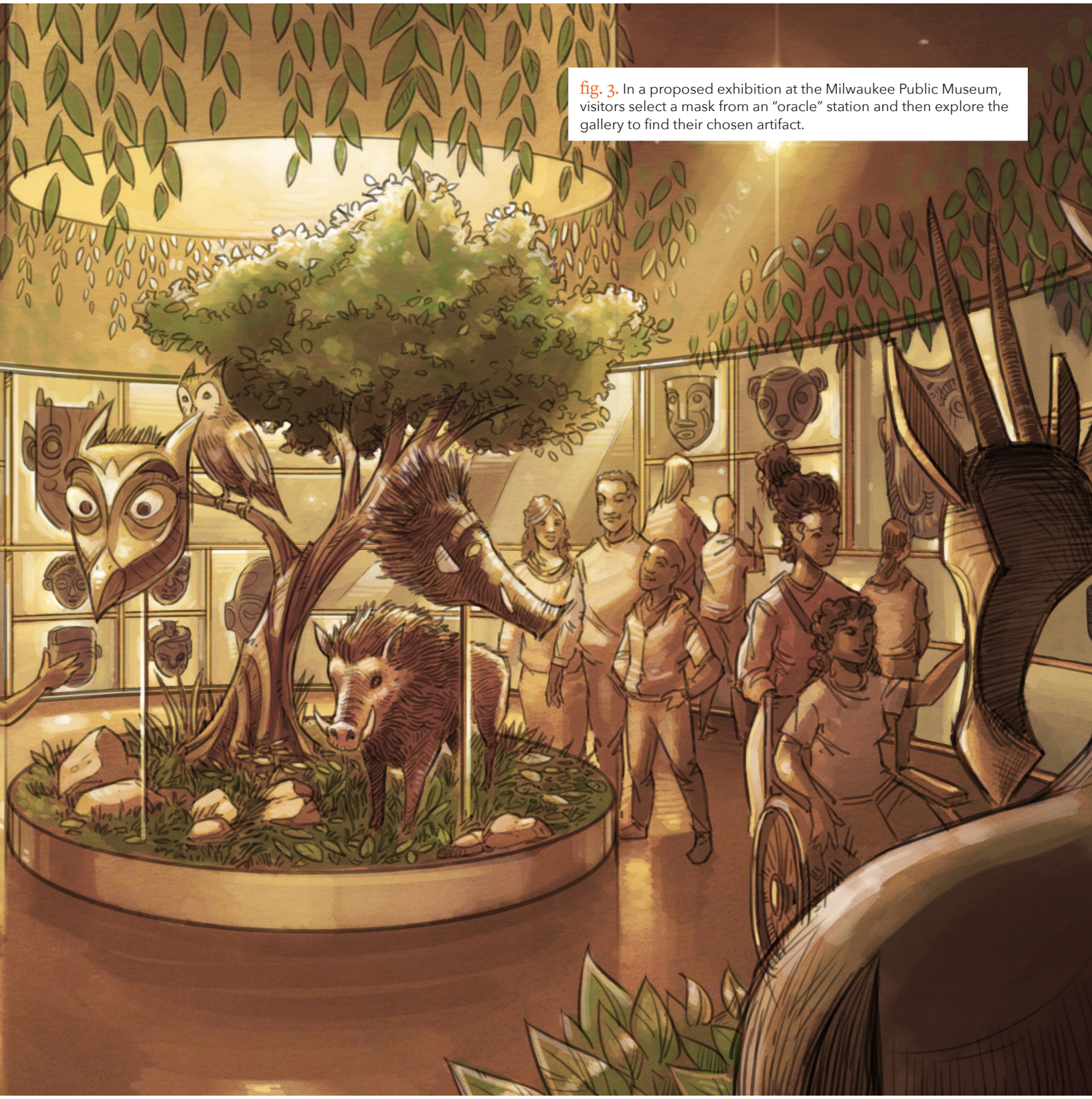


fig. 3. In a proposed exhibition at the Milwaukee Public Museum, visitors select a mask from an "oracle" station and then explore the gallery to find their chosen artifact.

light damage for photosensitive collections than a case with "always-on" lighting. Physical manipulations – like gently rotating turntables – should work below the threshold of concern for even the most conservative collections manager when used for all but the most fragile or delicate objects. Still many other kinds of interactive effects need not touch or move the object at all.

Operational durability. For those skittish about incorporating electromechanical apparatus into display cases, we rate this concern along the same continuum as adding an outboard motor to a rowboat. The motor certainly makes the boat more susceptible to failure, and therefore more reliant on regular maintenance, but it also makes the boat much more useful and attractive as a transport, particularly when actually trying to *get somewhere* or carry important cargo. Similarly, if properly engineered and tested during the design phase, and then not entirely neglected during a 10- or 15-year lifespan in the field, there is no reason why gently interactive displays cannot be maintained in good working order much longer, even, than typical computer-based interactives.

Overall expense. While doing more usually does cost more, need this concern obviate any interest in making object displays more interesting and engaging for visitors? It is a question of priorities. Spending considerable project resources on very fine casework that too many visitors barely appreciate can also be considered, in many ways, "expensive." In addition, the relatively large budgets for even a simple media interactive, used by one visitor at a time, could generate improved value if spread across multiple touch-points in an interactive collections display, particularly if those elements are expected to last longer than the typical touchscreen exhibit.

Conclusion

The presentation of objects, a traditionally visual act, is ripe for new thinking, and blended object interactives offer rich opportunities for new kinds of display and interpretation:

- They elevate the real, tangible artifacts, documents, and specimens to which museums uniquely provide access. By communicating more clearly an object's story and character to visitors, we feel that these simple interactive overlays actually have the potential to enhance an object's authenticity rather than distract from it.

- They offer an opportunity to create experiences that stimulate and react to multiple senses, something that many museums, in response to the varied abilities and learning styles of their visitors, have been working hard to do. Likewise, the inclusion of sound and music, audio descriptions, dramatic lighting changes, and other similar effects (for example, smell) all serve to transform static object displays into richer, more illuminating multisensory experiences.

- They can give visitors a "peek behind the curtain" to see how the process of curation, object preservation, and historical or scientific research works. Blended object interactives can serve as both prompt and guide for this engagement – helping visitors to intuit how to "do" history themselves.

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In conclusion, we feel the opportunities to deconstruct the traditional paradigms of collections display and interpretive exhibit design are well worth exploring for projects seeking maximum visitor engagement, increased dwell time, and enhanced learning value. While other experiments with new means of integrating inexpensive media and storytelling devices into multisensory, exploratory exhibitions are next on our list to tackle, we are eager to continue exploring how the traditional, stalwart object display can continue to become more intelligent, more responsive, and more magical.

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