



Museum Visitor Studies, Evaluation & Audience Research
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Exhibition Evaluation

Concept Testing for the *Cenozoic/Age of Mammals Hall*

Prepared for the
**Natural History Museum of Los Angeles County
Los Angeles, California**

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EXECUTIVE SUMMARY

This report presents the findings from concept testing for the *Cenozoic/Age of Mammals Hall* conducted by Randi Korn & Associates, Inc. (RK&A), for the Natural History Museum of Los Angeles County (NHM) in Los Angeles, California. Data were collected in March 2008. RK&A conducted in-depth interviews with 40 visitor groups in the existing *Cenozoic/Age of Mammals Hall* to examine visitors' perceptions and understanding of the content and design for the planned reinstatement.

**Selected highlights of the study are included in this summary.
Please consult the body of the report for a detailed account of the findings.**

RESPONSE TO SPECIMENS

- ◆ When asked to look closely at the *Brontops* skeleton, many interviewees discussed one or more of its obvious features (e.g., horns, tail), while some noted that it looked like a particular animal, most often a rhinoceros as stated in the label, but also a dinosaur or a pig.
- ◆ When asked to look closely at the *Smilodon* skeleton, nearly all interviewees noted its large canines—a feature that prompted many to immediately recognize the skeleton as a saber-tooth cat.
- ◆ Interviewees asked similar questions of the *Brontops* and *Smilodon* skeletons: the identity of the animal, information about the living animal (e.g., physical appearance, life style, habitat), and information about the fossil (e.g., which bones were “real” versus casts, age of the bones, details about the excavation).
- ◆ While many interviewees enjoyed seeing several skeletons displayed together, most noted that they need additional context to understand and appreciate the specimens.

PERCEPTIONS OF FOSSIL MAMMALS

- ◆ Nearly all interviewees were unable to accurately describe what a mammal is.
- ◆ Most interviewees also did not know how to describe the characteristics of a fossil.
- ◆ One-half of interviewees expected a fossil mammal exhibition to include dioramas or murals of animals in their habitats, particular specimens (e.g., mammoth, sloth, dinosaurs), or exhibits about the fossil excavation process. The other one-half did not have clearly defined expectations.

UNDERSTANDING OF GLOBAL CLIMATE CHANGE

- ◆ When asked what they knew about global climate change in the present, one-half of interviewees said they had little or no understanding of the topic. The other one-half said they had some familiarity with the topic but often expressed misconceptions.
- ◆ Regardless of how interviewees responded to the question about current global climate change, two-thirds accepted that the Earth's climate changed in the distant past. They either noted that climate change in the past was slower than today, cited the dinosaur extinction and ice ages as examples, or

referenced Biblical examples. The other one-third did not know anything about climate change in the past.

- ◆ As interviewees talked about global climate change, none made a connection between this topic and fossil mammals.

RESPONSE TO THE PLANNED REINSTALLATION

- ◆ When shown three renderings for the planned reinstallation, three-quarters of interviewees complimented the overall design. Most were intrigued by the two levels, specimens hanging from the ceiling, and free-standing specimens that would be viewable from all sides. Many also praised the light and open feeling of the space.
- ◆ One-quarter criticized the design, preferring instead a less modern aesthetic.
- ◆ Aside from their opinion of the design, about two-thirds of interviewees expressed concerns about the reinstallation's content and experiences: the lack of context for specimens and an absence of interactive experiences. The other one-third had either neutral or positive opinions.
- ◆ About three-quarters of interviewees described the planned reinstallation in positive terms, most often characterizing it as "modern," and "light and airy." One-quarter used negative terms, describing it as "sterile" or "stark."
- ◆ When asked to select terms that best described the planned reinstallation from a list of adjectives related to the new NHM brand, interviewees most often selected positive terms: "entertaining," "welcoming," "informative," "real," and/or "academic." Of the negative terms, "overwhelming" was selected the most often—but only by several interviewees.

VISITATION TO AND OPINIONS OF THE PAGE MUSEUM AND LA BREA TAR PITS

- ◆ One-half of interviewees had visited the Page Museum and the La Brea Tar Pits. Of these interviewees, nearly all said seeing the actual tar pits was a highlight of their visit because it provided context for the fossils. Many also praised the hands-on and multi-sensory elements in the Page Museum, and several appreciated opportunities to see real scientists at work excavating fossils or preparing specimens.
- ◆ Several interviewees expressed negative opinions about the Page Museum, describing it as too small and not worth a special trip to the site or finding the display of hundreds of Dire Wolf skulls confusing.

DISCUSSION AND RECOMMENDATIONS

The reinstatement of the *Cenozoic/Age of Mammals Hall* provides NHM staff with a unique opportunity to create a new model for specimen-rich natural history exhibitions. By building on interviewees' curiosity about the fossils, NHM can engage visitors in the process of science and build connections between the fossils and the exhibition's main message.

RESPONSE TO SPECIMENS

Overall, interviewees enjoyed looking at the articulated fossil skeletons but acknowledged that they needed contextualizing interpretation to make sense of and appreciate what they are seeing. Interviewees' observations tended to be somewhat cursory; however, they were more detailed for *Brontops* than for *Smilodon*. There are two reasons for interviewees' observational differences: 1) interviewees were more familiar with *Smilodon* than *Brontops*, so they quickly moved from making observations to guessing the identity of the specimen; and 2) interviewees were so impressed with *Smilodon*'s large canines that they had difficulty noticing any other skeletal features. These findings are consistent with those from other RK&A studies and demonstrate that museum visitors lack basic visual literacy skills (RK&A, 2008, 2002, 1998, 1997). That is, visitors do not realize that fossils are an information source, and they do not know how to glean information from fossils. Thus, the reinstatement will need to craft interpretation that encourages visitors to look closely at the fossils (rather than looking for an identification label), thereby honing their observation skills and deepening their interaction with the fossils, overall.

Throughout the conversations, interviewees wanted to “clothe” the fossils—that is, to have a sense of what the animal looked like as a living creature with muscle, flesh, and fur. Interviewees also repeatedly suggested that images, multimedia, and/or immersive diorama environments accompany individual fossils—both individual specimens and groups—to help them understand the fossils as living animals. Similarly, many of interviewees' questions were basic, such as where did the animal live and what did it eat. These questions likely stem from interviewees' past experiences, for example, visits to the NHM dioramas and a general expectation about how one learns about animals. While such information is a helpful entry point for visitors, the reinstatement should strive to take visitors to a new level of understanding by explaining how scientists study fossils to reconstruct the past. For example, an image of a fleshed out *Brontops* could be accompanied by a description of what the fossil record can and cannot tell scientists about the animal's physical appearance. Additionally, consider featuring new scientific discoveries as they arise to reinforce that scientific knowledge is not a set of static facts but an ongoing discovery. In the reinstatement, the exhibits should provide context for the fossils but also strive to extend visitors' understanding of how scientists piece together the past.

PERCEPTIONS AND UNDERSTANDING OF PROPOSED CONTENT

Many interviewees were unfamiliar with or expressed misconceptions about key topics of the proposed reinstatement. In fact, visitors at the NHM were less knowledgeable about global climate change than visitors at other museums (RK&A, 2008, 2007). As such, the reinstatement will need to introduce basic ideas, such as defining what a fossil mammal is and describing global climate change in the past and present, as well as connecting fossil mammals with global climate change events. Focusing the exhibition on one main message and reiterating that message throughout the exhibition will also help visitors with limited prior knowledge realize the message. Additionally, providing visitors with discovery

experiences in which they can examine scientific evidence for themselves can be a powerful way to address misconceptions, especially about politicized issues such as current global warming.

RECOMMENDATIONS

- ◆ Provide sufficient background information about key concepts (e.g., characteristics of a mammal, meaning of global climate change) so that visitors with a range of knowledge will be able to grasp the main messages.
- ◆ Use visitors' natural curiosity about the fossils as a springboard for discussing key concepts. For example, tie information about global climate change to specific fossils.
- ◆ Provide a variety of contextualizing interpretation for the fossils, including imagery that shows fleshed-out animals and habitats, succinct and engaging text, as well as interactive and multi-sensory experiences.
- ◆ Provide interpretation to help visitors look closely at fossils and engage in a discovery process to make sense of what they are seeing.
- ◆ Engage visitors in the *processes* of science and provide them with opportunities to see how real paleontologists conduct research.
- ◆ Acknowledge that scientific knowledge changes and design exhibits so they can be easily updated.
- ◆ Provide visitors with opportunities to examine real scientific data in a structured way, inviting them to draw conclusions that align with current scientific knowledge. For example, create an interactive experience that enables visitors to examine evidence of current global climate change.

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INTRODUCTION

This report presents the findings from concept testing for the *Cenozoic/Age of Mammals Hall* conducted by Randi Korn & Associates, Inc. (RK&A), for the Natural History Museum of Los Angeles County (NHM) in Los Angeles, California. Data were collected in March 2008.

RK&A designed the concept testing study for the *Cenozoic/Age of Mammals Hall* to examine visitors' perceptions and understanding of the content and design planned for the reinstatement, including their responses to select specimens. Specifically, the evaluation examined:

- ◆ How visitors think about and “read” the fossil mammal skeletons in the existing *Cenozoic/Age of Mammals Hall*—both large assemblages of skeletons and individual specimens;
- ◆ What questions visitors have about the fossils;
- ◆ What information or strategies would help visitors engage with the fossils;
- ◆ Visitors' familiarity with the concept of climate change—in the past and in the present—including, causes and effects;
- ◆ Visitors' visitation to and familiarity with the Page Museum and the La Brea Tar Pits;
- ◆ Visitors' responses to the plans for the reinstatement; and
- ◆ Visitors' perceived relationship between the reinstatement plans and the new NHM brand.

METHODOLOGY

RK&A conducted open-ended, in-depth interviews in the existing *Cenozoic/Age of Mammals Hall*. Interviews are useful for understanding visitors' background knowledge and perceptions. Open-ended interviews produce data rich in information because interviewees talk about their experiences from a personal perspective. In particular, interviews allow participants to respond in their own words and to explain why they think or feel a certain way.

The target audience for the study were English- and Spanish-speaking, drop-in visitors 9 years and older. The interviewer intercepted eligible visitors as they entered the existing *Cenozoic/Age of Mammals Hall*, following a continuous random-sampling method. In accordance with this method, the interviewer approached the first eligible visitor to enter a designated area and asked him/her to participate in the study. If the visitor agreed to participate, the interviewer asked him/her a series of questions. When the interview was complete, the interviewer thanked the participant and waited for the next eligible visitor.

The interviewer asked visitors several questions about specific specimens, fossil mammals in general, and global climate change (see Appendix A for the interview guide). Visitors were also shown renderings for the planned reinstatement and asked to respond to them (see Appendix B). The interview guide was intentionally open-ended to allow interviewees to discuss what they felt was meaningful. All interviews were audio-recorded with participants' permission and transcribed to facilitate analysis. The Spanish interviews were transcribed and then translated into English for analysis.

DATA ANALYSIS AND REPORTING METHOD

The interview data are qualitative, meaning that results are descriptive, following from the interviewer's conversations. In analyzing the data, the evaluator studied responses for meaningful patterns, and, as patterns emerged, grouped similar responses. To illustrate interviewees' ideas as fully as possible, verbatim quotations (edited for clarity) are included.

The interview data are presented in narrative. The interviewer's remarks appear in parentheses, and, for visitors, an asterisk (*) signifies the start of a different speaker's comments. At the end of each quotation, the interviewees' gender and age in years are indicated in brackets. Trends and themes in the data are presented from most- to least-frequently occurring.

PRINCIPAL FINDINGS

RK&A conducted interviews with a random sample of English- and Spanish-speaking, drop-in visitors as they entered the existing *Cenozoic/Age of Mammals Hall*. Data were collected in March 2008. RK&A conducted interviews with 40 groups of visitors, including 45 adults and 16 children. Of visitors approached and asked to participate in the study, nine declined to do so, for a 23 percent refusal rate.

VISITOR DEMOGRAPHICS

Overall, male interviewees (64 percent) outnumbered female interviewees (36 percent). Adult interviewees ranged in age from 19 to 68 years, with a median age of 36 years. Children interviewed ranged in age from 9 to 14 years, with a median age of 10 years. Interviewees were accompanied by an additional 32 children who were not eligible to be interviewed (i.e., they were younger than 9 years old, the minimum age to be interviewed), with one-half being pre-school-aged children (between 6 months and 4 years).

Nearly all of the interviews were conducted in English; three were conducted in Spanish.

One-half of interviewees were visiting NHM for the first time and the other one-half were repeat visitors. Of repeat visitors, many had not visited the Museum in the past 12 months, several had visited one or two times, and a few had visited three or more times in the same time period. Twenty percent of interviewees were NHM members.

RESPONSE TO SPECIMENS

Interviewees were asked to look closely at two specimens—*Brontops* and *Smilodon*—and to discuss their observations and questions. Interviewees were also asked to comment on displays that show multiple skeletons together.

BRONTOPS

Interviewees' observations of *Brontops* varied. Many interviewees discussed one or more features of the skeleton, for example, commenting on the animal's horns, tail, "spikes" on its back (referring to the vertebrae), hind limbs, toes, and/or a head. Some also noted that *Brontops* looked like a particular animal, most often a rhinoceros, as stated in the text panel, but also either a dinosaur or a pig. Several mentioned the large size of *Brontops*, while a few others noticed that the skeleton was mounted to look like it was running. Three quotations are provided below to illustrate the range of responses.

(As you looked at this skeleton, what are some things you noticed about it?) It's interesting how its whole head . . . kind of curves in and then back out. . . . It has such a big body and then a small, little tail. It has huge horns on the head. [male, 19]

(What are some things that you noticed about it?) I noticed it has two horns on its head. I noticed that it has four toes, instead of five. It also has scales on its back—spines . . . or it used to have plates. *And it looks sort of like a rhino. (How so?) *Well the horns and the sign says it's related to rhinos. [male, 35; male, 38]

(What are some things that you noticed about it?) That it is a very impressive animal. It's impressive to see an animal like this. (Why is that?) It's quite big and heavy. [male, 40; translated from Spanish]

In terms of the questions interviewees asked about *Brontops*, most wanted to know what animal it was, including whether it was related to the modern rhinoceros, and what it looked like (see the first quotation below). Many also wanted to know more about the living animal, including what it ate, why its tail was so small, how it used its horns, and in what kind of habitat it lived (see the second quotation below). Several asked questions related to the fossilized bones, wondering which bones were “real” and which were reproductions, whether the skeleton was found intact or if it had bones missing, how old the bones are, who discovered them, and from where they were excavated.

(What questions, if any, do you have about this skeleton or the living animal that it came from?) What it looked like when it was [alive]? Maybe you could draw a picture of what it looked like. *It's kind of similar to a rhino, right? What was it? What did it look like? I think that would be cool. [female, 20; male, 21]

(What questions, if any, do you have about this skeleton or the living animal that it came from?) It's like at the zoo—they have these [signs] that tell you a little bit about the animal. They [NHM] could include something that tells you what it ate and what it did—when it was alive. [male, 16]

SMILODON

Interviewees mentioned one or two characteristics of the *Smilodon* fossil. Nearly all interviewees noted the large canines—a feature that prompted many to immediately recognize the skeleton as a “saber-tooth tiger” or “saber-tooth cat.” Several also noticed the claws and a couple described the spine and ribs as “frail.” Two quotations are provided below to exemplify the responses.

(What are some things that you noticed about this skeleton?) Definitely the teeth. It looks like a saber-tooth lion or something. . . . I just pretty much notice those crazy teeth! [female, 30]

(What are some things that you noticed about this skeleton?) Big teeth! He looks like some kind of cat—like a Saber Tooth Tiger type of animal. He had big paws. [female, 38]

Interviewees' questions about *Smilodon* were similar to the questions they had about *Brontops*. Most wanted to know what animal it was, seeking confirmation of their guess that it was a saber-tooth cat, as there was no label in the existing exhibition (see the quotation below). Many also wanted to know more about the living animal, including how it used its teeth, which animals it preyed on, how fast it ran, what sounds it made, and whether it lived in North America. Several asked questions related to the *Smilodon* fossil, wondering why its bones were darker than the other specimens, which bones were “real” and which were reproductions, whether the skeleton was found intact or if bones were missing, how old the bones are, who discovered them, and from where they were excavated.

(What questions, if any, do you have about this skeleton or the living animal that it came from?) I think we can pretty much know that it was a carnivore. *Yeah. It didn't eat grass and berries with those teeth. We thought it was a saber-tooth cat but there isn't a sign so maybe it's a dog or bear. So, what is it? [female, 59; male 60]

DISPLAY OF MULTIPLE SKELETONS

While many interviewees enjoyed seeing several skeletons displayed together, most noted they needed additional context to appreciate the specimens. Nearly two-thirds of interviewees suggested displaying the skeletons with images or videos showing recreations of the animals and their environments (see the first quotation below). Some recommended displaying the skeletons interacting with each other in a “diorama” habitat (see the second quotation), and several suggested including multi-sensory and interactive opportunities (e.g., things to touch, animal sounds) to increase the appeal of the skeletons to visitors of all ages.

(Overall, what is your reaction to seeing many skeletons displayed together?) Grouped together like this—it’s okay. But it’s kind of bland. Only because you have the skeleton, a little bit about it, but then just a blank wall behind it. When you go into the other halls, you’ve got a rendering of what the environment looked like. So . . . it’s not as interesting when they’re grouped together like this—for the casual observer or children. . . . you [should] do something to make it a little more interesting, a little more eye catching. (What might make the skeletons more interesting or engaging?) Just to have the surroundings . . . and some more information about [the animals]. . . . *Or even if you could have, on the wall behind them, maybe an artist rendering of what they thought that the animal looked like when it was alive and functional, say, ‘This is the actual skeleton and then back there is what the artist thinks that the animal looked like when it was alive.’ That kind of fires the imagination a little. [male, 41; female, 35]

(Overall, what is your reaction to seeing many skeletons displayed together?) I guess just coming from the other exhibits, [in which] all the animals . . . [have] their own diorama—everything that really helps to dramatize [the animals] in their surroundings. . . . I would like to see [the skeletons] in . . . their environment [such as] . . . in some sort of diorama [with] paintings, pictures, foliage. . . . Maybe some a little more elaborate that shows who’s the prey and who’s the predator. See the animals interacting with the surroundings and each other. (What might make the skeletons more interesting or engaging?) Just more of an artistic flare. . . . Like more dramatic lighting . . . and just maybe present it in a way that sort of [looks like] their natural surroundings. [male, 43]

About one-third of interviewees wondered about the grouping of the skeletons in the existing exhibition, asking if the skeletons were from the same habitat, paleontological site, or time period. These interviewees also noted that they need context and interactive experiences to help them learn about and appreciate the specimens (see the quotations below).

(Overall, what is your reaction to seeing many skeletons displayed together?) Having not read all the signs—are they grouped . . . by age or region? They seem . . . a little bit stagnant the way they’re positioned. . . . (What might make the skeletons more interesting or engaging?) Do something with the background. . . . They just seem kind of inanimate. . . . They seem sort of like sculptures—just not really anything engaging about what they are. They’re just things. You need a background or something. [male, 40]

(Overall, what is your reaction to seeing many skeletons displayed together?) It’s okay. It’s nice. Did they all live together in the same place? That [would] make sense. Or unless they lived in different types of weather or area—like the mountains or lakes? Did they like cold or warm or hot weather? (What might make the skeletons more interesting or engaging?) Texture. . . . I want to be able to touch the skin—to see what it felt like. How fast was he? How strong were they? Maybe like something that shows you the muscle power—maybe you press on [something] to force it back—to see [how strong] it [the animal] was. [female, 40]

In contrast, a few interviewees said they appreciated seeing a large assemblage of skeletons. As one interviewee stated, “It [the existing exhibition] is like a tribute to the skeleton—the more the better.” Another said he enjoys seeing multiple skeletons but acknowledged that many visitors would need help making sense of what they were seeing (see the quotation below).

(Overall, what is your reaction to seeing many skeletons displayed together?) I think it’s pretty cool. You can make comparisons. But you have to explain to people what the comparisons are, because the average person just looking at it won’t notice the differences. [For example,] you have to point out the anatomical structure that distinguishes an animal that runs from animals that tend to walk slowly. . . . [Highlight] the distinguishing characteristics that make [each skeleton] different from [one] another. Go over the similarities and differences of each one. I think that helps people understand and it makes it more interesting. [male, 40]

PERCEPTIONS OF FOSSIL MAMMALS

The data collector asked interviewees to discuss their associations with and understanding of the term, “fossil mammals,” as well as to describe their expectations of an exhibition about fossil mammals.

ASSOCIATIONS AND UNDERSTANDING

Nearly all interviewees were unable to accurately describe what a mammal is. Many said they did not know what the term meant, and several wondered how fossil mammals and dinosaurs differ (see the quotation below). Three interviewees associated “cavemen” with fossil mammals and were not sure whether mammals are living today. Two named specific animals—a whale and a deer—that they thought were mammals. One interviewee identified specific mammal characteristics, stating that a mammal “gives live birth and provides milk” for its offspring.

What’s the distinction between dinosaurs and fossil mammals? Because as far as we know, when you see just a bunch of bones, you assume that they’re from the same time. Even if they’re from the Triassic or Jurassic Period, you still associate them with being dinosaurs. You should have something that truly clarifies how distinct they [fossil mammals] are from the dinosaurs. [male, 42]

Most interviewees also did not know how to describe what a fossil is. Many used the term “fossil” when defining a fossil (see the first quotation below). Several said fossils are “really old” and come from “extinct” animals. A few said “fossils are dinosaurs.” In contrast, several interviewees were slightly more knowledgeable about fossils, noting that fossils are preserved remains found in the ground or tar pits (see the second quotation).

(When I say the term “fossil mammals,” what comes to mind for you?) Just animals that were dead and turned into fossils. [female, 40]

Fossils—I think of things that were once living that were encrusted in rock or dirt. [male, 43]

EXPECTATIONS

One-half of interviewees articulated specific expectations for a fossil mammal exhibition. Many assumed the exhibition would include dioramas and/or murals of animals in their environments. Several expected to see particular fossils: a few mentioned a mammoth or mastodon, a few others said “T-Rex” or “dinosaurs,” and one said a sloth. Two others anticipated seeing exhibits about the fossil

excavation process, and one expected to see “animatronic” animals like at those at the Page Museum at the La Brea Tar Pits.

The other one-half of interviewees did not have clearly defined expectations of a fossil mammal exhibition. Either they said they did not know what to expect or they had a general sense that the exhibition would include “fossils and information.”

UNDERSTANDING OF GLOBAL CLIMATE CHANGE

The data collector questioned interviewees about their understanding of global climate change in the present and in the past.

PRESENT

One-half of interviewees had little or no understanding of global climate change in the present. Some interviewees said they knew nothing about the topic, while several expressed recognition of the term “global warming” but were unable to explain its meaning. A few thought “climate” and “weather” were synonymous.

The other one-half of interviewees said they were familiar with global climate change in the present, often noting the political nature of this issue. Some described current global climate change as a dire situation resulting from human-created pollution (see the first quotation below). An equal number perceived current global climate change to be part of a natural cycle and downplayed the role of humans (see the second quotation). It is noteworthy that both sets of interviewees—those who accept human impact and those who do not—had misconceptions about current global climate change.

(What, if anything, do you know about climate change?) Now the Earth is getting warmer and people are influencing that change. (How so?) Industry and the way we abuse the Earth. We don't recycle and we take things from the Earth—the rainforests and intruding on animals' habitats. If we're not careful, we'll go extinct, too. [female, 38]

(What, if anything, do you know about climate change?) You mean global warming? (Sure, whatever you know about it.) There's climate change and depending on what political party you're in—it's [either] an extreme unchangeable thing or it's a natural cycle that might be happening as part of the Earth's evolution. . . . I lean towards that a little bit. Although I know we are impacting the Earth by what we do, [but] I also know that the Earth certainly is strong enough to sustain itself and recreate and regenerate itself as well. And knowing that there [have] been cycles in the past, with how the Earth has cooled and warmed. I still think we need to be completely respectful of the Earth, but I don't think that it's—it's too hyped up. So that's my opinion—not to get too political. I think that . . . some Swiss studies that I saw that were saying that the Earth shifts in temperature, several degrees, over hundreds of years and that's just the normal thing. Unfortunately, we don't have enough data going back before the 1900s. [male, 37]

IN THE PAST

Regardless of how interviewees responded to the question about current global climate change, two-thirds accepted that the Earth's climate changed in the distant past. Several noted that changes in the Earth's climate were slower in the past than today (see the first quotation below), and several others cited the dinosaur extinction or ice ages as examples of past climate changes (see the second and third quotations). A few mentioned Biblical references as examples of climate change (see the fourth

quotation). In contrast, one-third said they did not know anything about global climate change in the past.

(What about climate change in the distant past—like thousands of years ago and even further back in the past?) They were definitely causes of major extinction that occurred before now which is the origin of why people don't think the weather change we're having today is man-made. Although the global warming trend that we [have] seen recently is really faster than many periods in history. So I think what we're doing definitely has some contribution to it. But obviously, the Earth has these changes—cycles by itself—and I'm sure the climate has changed many times over the course of history. [male, 40]

I know that . . . climate change [in the past has] killed off a lot of animals—kind of like [how] the dinosaurs [were] killed off—that's one of the theories, right? That the dinosaurs disappeared because of climate change? *And because of climate change, it also caused other animals to die off. [female, 34; male, 38]

Certainly there were dramatic climate changes on the Earth. There were times when it was very hot, [and] there were times when there were ice ages, too. [male, 56]

(What about climate change in the distant past—like thousands of years ago and even further back in the past?) We're Christian. (Okay.) So we realize that the evolutionists would not agree with us, although they can't prove their theory. Let them try. We know that the climate was one way pre-Flood and it was another way after the Flood. [female, 40]

RESPONSE TO THE PLANNED REINSTALLATION

The data collector showed interviewees three renderings for the planned reinstallation of the *Cenozoic/Age of Mammals Hall*—each showing a different view of the exhibition (see Appendix B)—and then asked a series of questions. Interviewees commented on the design, content, and experiences of the proposed reinstallation. The data collector also asked interviewees to describe the reinstallation using their own words and then to select adjectives from a list (see Appendix C).

REACTION TO THE RENDERINGS: DESIGN

Three-quarters of interviewees complimented the overall design of the reinstallation. In particular, most interviewees were intrigued by the two levels, the specimens hanging from the ceiling, and the free-standing specimens that could be viewed from all sides (see the first quotation below). Many also praised the light and open feeling of the space, noting that it would be a great improvement over the dark conditions of the existing exhibition (see the second quotation). Several said they liked the “clean,” “contemporary” or “modern” design.

(What is your reaction to these views of the new exhibition?) I love how bright it is. I think we saw this at the Smithsonian—where they have animals with skin and fur up above—that draws your eye to not just looking straight ahead or to the side, but actually looking all around you. . . . I love the idea of having a second floor, because it makes the bottom floor feel really open but at the same time you know that there's a lot more to go see. I guess the glass would work for me if it allowed me to get a lot closer than I am right now to the bones. I like the idea of being able to walk all the way around some of the exhibits, as opposed to just [seeing them] from one perspective. [male, 42]

(What is your reaction to these views of the new exhibition?) It's a more open space, brighter, more kid-friendly. . . . I think it makes me feel more comfortable, because it's more open. It's a lot better than here [the existing exhibition]. It is so dark. It's a little scary for kids. [female, 36]

In contrast, one-quarter of interviewees criticized the design, with some describing the glass and metal as “impersonal” and “cold” (see the quotation below). While these interviewees acknowledged problems with the existing exhibition, they seemed to prefer older display techniques—such as wooden cabinetry and open dioramas. A few were concerned that the planned exhibition looked over-crowded with displays and would be difficult to navigate on busy days.

(What is your reaction to these views of the new exhibition?) I guess everything in this place [has] to be kept in glass cases now—versus how it used to be—more exposed. It probably preserves the fossils better, but it gives you the feeling—like ‘keep away.’ It makes you feel further away from the [fossils]. I like this exhibit [referring to the existing exhibition]. . . . It just feels more personal, [having] the stuff out in the open. . . . Compared to today's exhibit, it [the reinstallation] is more modern looking and it looks brighter. It's just a different way of displaying [the fossils], and I don't necessarily see it as better or worse. But I prefer the feeling of the older [exhibits]. [male, 40]

REACTION TO THE RENDERINGS: CONTENT AND EXPERIENCES

Aside from their opinion of the design, about two-thirds of interviewees expressed concerns about the reinstallation's content and experiences. Many perceived the reinstallation to constitute primarily individual specimens and suggested including dioramas or other habitat groups to show animals in their environment (see the first quotation below). Others said, in more general terms, that they would like to see the specimens displayed in context (see the second quotation), and several asked if the reinstallation would feature interactive and multimedia exhibits as well as audio-tour options. A few were confused by seeing modern animals depicted with the fossils (see the third quotation).

(What is your reaction to these views of the new exhibition?) I like the way that the animals are everywhere—not just at eye level, but they're up above looking down on us and hanging from the ceiling. That looks really cool. *But there is no habitat—there aren't any habitat displays. (And how do you feel about that?) *There needs to more habitat or habitat pictures not just stuff in glass cases. Is there stuff on the walls or are they just white? [female, 40]

The setting [in the reinstallation] is different, but the information really is not much different. You're proposing it to be modernized [with] glass and metal, and it's certainly really contemporary looking, but the fact is that they're still just displays. . . . Nothing in here [the renderings] makes me [think] that it will be more interactive or [have] more information. It just looks like it's a beautiful environment and that's great, but as far as the scope of information . . . I can't determine if it's anything different [than in the existing exhibition]. [male, 37]

The stuffed polar bear is unexpected. You seem to have more modern creatures, so is it going to show the evolution of the animals? . . . I thought it was just going to be the fossils? [male, 56]

The other one-third of interviewees had either neutral or positive opinions about the proposed content and experiences. Several did not add any comments to their initial reaction to the renderings, stating that the reinstallation “looks cool.” A few were excited to see a mammoth skeleton in the reinstallation (see the first quotation below), and a few others expressed interest in the exhibits about plate tectonics (see the second quotation).

(What is your reaction to these views of the new exhibition?) Oh! I do see a mammoth! Is that coming? That would be amazing to see. [female, 33]

I like the plate tectonics [exhibit]. (Why is that?) It looks interactive and I'm just interested in [that topic]. [female, 68]

DESCRIPTIONS OF THE PLANNED EXHIBITION

Interviewees were asked what words they would use to describe the planned reinstallation. About three-quarters of interviewees used positive terms, most often characterizing the reinstallation as “modern” and “light and airy.” A few described it as “welcoming,” “exciting,” “eye-catching,” or “attractive.”

Conversely, one-quarter described the planned reinstallation using negative terms. A few said the exhibition was “modern but not in a good way,” “sterile,” or “stark.” A few others noted that the design of the reinstallation was “not the museum of my childhood,” mourning the loss of past display techniques.

REACTION TO BRAND TERMS

Interviewees were asked to view a list of 14 terms that support the new NHM brand (eight positive terms that the Museum hopes to embody and five negative terms it hopes to avoid), and then to select the words that best describe the planned exhibition as understood from the renderings. The list was in English (see Appendix C) and Spanish.

Interviewees most often selected “entertaining,” followed by “welcoming.” Many also selected “informative,” “real,” and/or “academic” as words that described the planned reinstallation. The data collector was careful to ask interviewees whether “academic” had positive or negative connotations, and those who selected the term said it was a positive descriptor. Several interviewees each chose “intriguing,” “inspirational,” “dynamic,” “overwhelming,” and/or “slick.” When interviewees were asked whether “slick” was a positive or negative adjective, responses were mixed: a few interviewees said “slick” was a negative descriptor while others simply equated the term with “modern.” A few interviewees each selected the following adjectives: “timeless,” “boring,” and “crowded.” One interviewee chose “dated.”

VISITATION TO AND OPINIONS OF THE PAGE MUSEUM AND LA BREA TAR PITS

The data collector asked interviewees whether they had visited the Page Museum and the La Brea Tar Pits and, if so, to discuss their opinions of them. Responses were evenly split: one-half of interviewees had visited the site and the other one-half had not.

Of interviewees who had visited, nearly all said seeing the actual tar pits was a highlight of their visit because they provided context for the fossils (see the first quotation below). Many also praised the hands-on and multi-sensory elements in the Page Museum (see the second quotation), and several appreciated seeing scientists excavating fossils in the tar pits and/or preparing specimens in the Museum lab (see the third and fourth quotations). A few enjoy seeing the “life-like” models and animatronic versions of the animals in addition to the skeletons. A few others praised the outdoor, park setting of the site, and a couple said the specimens of saber-tooth cats and mammoths were their favorite aspect.

(What aspects of the Page Museum, if any, did you find particularly interesting?) That the tar pits were still active . . . and how much stuff [they have] found in it. . . . I think that's pretty

cool, because you can see where they [the tar pits] actually were. *You . . . feel a little bit more connected because you see where [the animals] died. So that's pretty cool. (What's cool about that?) *It shows us what kind of animals lived around here and it kind of makes you wonder, like 'Wow! What was before we were here?' [female, 20; male, 21]

One of the things I think is interesting for kids and families . . . is that [the Museum] has a couple interactive things. [Visitors] can try lifting the bars out of a thing of tar to see how tough it was for animals to escape. And then you can smell the tar. [female, 33]

I like the outdoor exhibit . . . where they had the viewing area over the [tar] pit. [There] were [college] students actually down there working—to see the scientists actually doing something was very interesting. [male, 60]

[The Page Museum has] the lab, which I think is really neat, because students actually get to see how the scientists work and how they clean the fossils. [female, 40]

Several interviewees expressed negative opinions of the Page Museum. A few said it was too small and not worth a special trip to the site (see the first quotation below). A couple of interviewees said they found the display of hundreds of the same fossil “boring” and did not understand its purpose (see the second quotation).

If you're in the area it's fun to stop by [the Page Museum], but I wouldn't go out of my way to visit it again. [male, 32]

[The Page Museum] is nice. . . . But they have too much of the same thing. That one [exhibit] with like 500 or 50 or 100 skeletons of the same thing [referring to the Dire Wolf display]—maybe they could have more variety. [female, 59]

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