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The Great Blue Whale

Call her Big Blue. She's just that. She's 26m (85ft) of big blue whale living at the Beaty Biodiversity Museum in Vancouver, Canada.

Size is the most defining attribute for blue whales. Big Blue and her fellow *Balaenoptera musculus* are the largest organisms to have lived on Earth. They are bigger, even, than the massive Mesozoic sauropod plant-eating dinosaurs like *Argentinosaurus*. *National Geographic* and the Royal Ontario Museum put the size for most blue whales at about 30m (100ft) in length, with them eating something like 3,600kg (7,900lb) of krill a day. Every time a blue whale opens up to take in a mouthful of krill, it is the largest single feeding event that has ever happened. Blue whale calves gestate for a year, are born weighing three tons and gain 90kg (200lb) a day for the first year of their lives. This organism is so enormous that it's hard to internalise just what these impressive stats really mean.

But Big Blue, such as she is, is more than just her measurements and factoids. By necessity, she and others of her species are built out of superlatives, similes and parallels. ('Blue whales are longer than two trolley buses parked behind each other.' 'Their hearts are the size of a car and the arteries connected to the car-sized heart are large enough that a human baby could crawl through them.' 'A blue whale's tongue weighs as much as an elephant.') Because Big Blue's magnitude is so out of humans' life experience, these analogies are attempts to make her size accessible to us – a species that would need something like 15 of its individuals standing on each other's shoulders to even look Big Blue in the eyes.

Blue whales are found across the globe in the Atlantic, Indian and Pacific Oceans. At the beginning of the twentieth century these colossal cetaceans were abundant, and biologists estimate that whale populations in the mid-1800s were somewhere between 250,000 and 350,000 individuals. However, decades of unabated, industrialised whaling in the late nineteenth and early twentieth centuries decimated blue whale numbers, as they did a plethora of other whale species, as whalers made their fortunes by hunting the animals for oil and blubber. Between 1904 and 1967, a total of 350,000 blue whales were hunted from the Antarctic Ocean. In the 1931 season alone, whaling ships caught something like 29,400 blue whales in the Antarctic.

In the 50 years between 1920 and 1970, scientists estimate that on average, blue whale populations lost 20 per cent of their body mass, essentially becoming smaller because of commercial whaling. Under pressure from conservationists and scientists horrified by whaling's effects on marine populations, 1972 saw blue whales achieve legal and conservation protections to save them from being systematically hunted. Even under such protections, however, current blue whale populations have been slow to rebound, with only 1 per cent of the pre-whaling population alive today. For most of their recorded history, whales have been defined through their relationship to whalers and the whaling industry as, for better or worse, most scientific knowledge about whales has come from the slaughtered animals.

In the twenty-first century, blue whales are no longer a mere commodity of the whaling industry, valued for their meat, blubber and oil. In the post-whaling world of the late twentieth and early twenty-first centuries, blue whales have become an icon of conservation efforts – the charismatic megafauna of the ocean. Where savannahs have elephants and mountain forests have pandas or

gorillas, the blue whale is the ocean's cultural ambassador, reminding *Homo sapiens* that it holds blue whales' destiny in the hands of its environmental policies and practices, and have for over a century.

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Big Blue died just off the coast of Prince Edward Island (PEI) in 1987, stranded on the Canadian beach near the village of Tignish. When the stench of 80 tons of rotting whale flesh assailed the nostrils of island locals, the quick consensus was to bury the corpse with backhoes and hope that the reek disappeared into the red, sandy clay of PEI's beaches. It took two days and serious earth-moving equipment to cover up the animal. For two decades, the whale carcass remained in its shallow grave – unmarked, unmapped and generally forgotten.

In 2007, however, whale biologist Dr Andrew Trites of the University of British Columbia (UBC) decided to excavate the blue whale skeleton to be the centrepiece of the newly opening Beaty Biodiversity Museum on UBC's campus. In media interviews, Dr Trites described his pursuit of a blue whale skeleton as the fulfilment of his life-long dream of finding, cleaning and curating such an exhibit. Exhibits of blue whales raise the prestige and scientific cachet of museums and never fail to impress visitors.

In order for the Beaty exhibit to work, Trites argued, it had to be a real skeleton of a real blue whale. None of the business of creating life-size blue whale models like those that had hung in the hallowed halls of the American Museum of Natural History and the Smithsonian for decades. Those were fine for the education of museum visitors, but having a real skeleton would do that *and* it would be authentic to boot. Only the Real Thing – as he saw her – would do.

Worldwide, to date there are only 21 blue whale skeletons displayed as part of museum exhibits. Blue whale skeletons hang, trophy-like, in natural history museums from the Marine Discovery Center in Santa Cruz, California, to the South African Museum in Cape Town. The Canterbury Museum in Christchurch, New Zealand, had a blue whale skeleton in its Garden Court from 1976 to 1994, before it was moved to storage pending its eventual return to a newly refurbished museum hall. The Natural History Museum in London has one of the oldest skeletons of a blue whale, collected from Wexford Bay, south-east Ireland, in 1891 and put on display in 1934. (The whale, christened Hope in the twenty-first century, was moved to the Hintze Hall in 2017 as part of the museum's recommitment to exhibiting specimens that show off the beauty and wonder of the natural world.) The Royal Ontario Museum in Toronto collected two blue whales, which had stranded in 2014, from a Newfoundland beach.

It's a rare thing for a blue whale to strand itself in circumstances that are conducive to it being collected by a museum – and even rarer for a museum to have the resources and wherewithal to collect, clean and curate its skeleton. Having a real blue whale skeleton on display would certainly establish the newly built Beaty Museum's scientific legitimacy and authority. 'In British Columbia, there's probably fewer than 10 that still live off of the shores of BC,' Trites pointed out in the 2011 documentary *Raising Big Blue*, highlighting how rare the animals are. 'In eastern Canada, it's in the low hundreds. It's such a rare, rare animal. And the opportunity to find one when it does die is even rarer.'

In *Raising Big Blue*, Trites scours several locations in the hopes of finding his Blue, but 'it's not until he caught a whiff of the old story' that the PEI whale became a

contender. In mid-December 2007, the Beaty Museum sent a recon team of four scientists to PEI to find the buried skeleton and to determine if recovery was possible. Six months later, in May 2008, Trites, his team and his intrepid volunteers dug in and exhumed the remains of the buried PEI cetacean. Trites thought the entire project might take two weeks: go to PEI, find the whale bones, dig them up and ship them back to Vancouver – easy, peasy.

However, the project of removing the whale from the beach immediately became much more involved and difficult than Trites had originally imagined. The clay-infused sand had not been conducive to the whale's decomposition, as such soils are low in oxygen and hence prevented bacteria from growing and breaking down the whale. (Trites had hoped that enough time had passed from when the whale had been buried for the fleshy parts to have decomposed, so that he'd be left with a clean, articulated skeleton to pluck from the sand and hang in the museum.) To add a bit of insult to injury, instead of excavating just whale bones, team members found that that they were excavating exactly what the PEI locals had originally objected to – the smell of still-rotting whale carcass.

'I tend to think about whale decay as a process from sashimi-grade fresh to burn-your-clothes disgusting. At the outset, there is something about the volatile organic compounds, like wax esters or hydrocarbons, locked in blubber, that appeal to me – a fresh smell associated in my mind with dissection and hands-on discovery,' Smithsonian curator of fossil marine mammals Nick Pyenson said when I asked him to describe the stench of dead whales, 'and that tends to be a strong smell associated with whale bone collections because the lipids generally are pretty difficult to entirely pull out of whale bones.'

Working in raincoats and galoshes, the team found itself working with close to 80 tons of dead-but-not-gone putrid mammal. After two weeks of efforts to extricate the carcass from the sandy clay, Trites organised for the entire set of remains of the blue whale to be transported back to the Beaty in refrigerated trucks – to stall the decay now that the whale was exposed to air and environmental conditions again – to Vancouver museum was located more than 6,000km (3,730mi) away from PEI.

Once the whale bits arrived in Vancouver, the flesh, muscle, and oil had to be stripped from the bones before the skeleton could be hung in the Beaty. (In an odd bit of art imitating life, the project of excavating and mounting the PEI whale quickly became its own set of superlatives – raising ‘Earth’s Largest Animal’ from ‘Nature’s Biggest Stink’ in a project hyped as an ‘Impossible Cleanup’. The entire enterprise could be most succinctly described as ‘Herculean’.) Cleaning the skeleton wasn’t easy, but it was rather straightforward. Degreasing her was something else entirely.

To understand why cleaning whale skeletons is so difficult and is such an involved process, it’s important to keep in mind that whale bones are extremely porous – much more so than other mammalian bones. When whales are alive, their spongy bones are filled with oil. However, not all stranded whales end up with such greasy skeletons. The Prince Edward Island blue whale was particularly problematic because of the type of soil that she had stranded herself on. (Some whales are stranded on soils more conducive to natural decomposition practices, and curators and scientists can simply bypass these steps entirely.) For 20 years, this blue whale’s oil had been going rancid in PEI’s clay sands, and when Mike deRoos, the blue whale Project’s Master Articulator, popped open the cargo containers in Vancouver, the reek was apocalyptic.

DeRoos and his team began cleaning the bones using special degreasing tanks, spraying down everything with a degreasing enzyme to try and break down the oil. 'We used industrial cleaning and de-greasing enzymes solutions produced by a company called Novozymes,' deRoos explained to me over email. 'These were primarily lipases mixed with detergents that are typically usually used to clean restaurant floors and grease traps and to clean up oil saturated sites *in situ* among other things. We also used bacteria designed to further break down and digest the products of the enzyme reactions to water soluble waste products that could then be flushed from the bones. It took a lot of attempts to refine the process.'

But the bones still seeped. They sprayed down the bones with the enzyme. But the bones still seeped. The team built a 2,500gal (11,356-litre) bath filled with marine bacteria that could digest oil. Even then, some of the bones still seeped. After months of struggling to keep the bones from becoming a pulverised, soupy mess in those baths, and up against the deadline of the museum's opening night, the whale-cleaning group consulted a team from the university's microbiology department in November 2008 – the microbiologists recommended that the cleaning crew turn up the heat in the baths. And yet some of the bones still continued to seep.

Eventually, deRoos put the larger bones that were veritable oil reservoirs into a vapour-degreasing process that seemed to do the trick. The team had lost some of the whale bones over the course of the cleaning as they had simply broken down and melted away with the intense enzyme treatment. Still determined to see this specific blue whale skeleton hang in the Beaty, Trites had duplicates of destroyed bones, like the skull, sculpted in plaster. (Creating a replica replacement of the skull required 60 moulds of different parts of the skull to be cast, then put together.)

‘Once the skull is painted,’ the *Raising Big Blue* documentary points out, ‘no one will be able to tell the replica from the real.’

From January through April 2010, deRoos began to put the bones in order, and to lay out how the whale would be articulated inside the museum. Between April and May 2010, the team installed the skeleton, with the final logistical nightmare being a game of high-stakes Jenga to get the whale bones through the front door and into the museum. The bones were hoisted into place and, at 26m (85ft) in length, this is the largest blue whale on display in Canada. Captain Ahab might have chased his white whale ‘round Good Hope and Perdition’s flames, but at least he didn’t have to deal with the headaches of whale rot, enzyme baths, liquefying bones and museum deadlines that had beset Trites and his team in their quest to put that PEI whale in the Beaty. Finally, on opening night, as the whale skeleton hung in all its glory from the Beaty’s ceiling, Trites could take a bow as a result of the success of his project. The whale was christened Big Blue.

Today, all 26m (85ft) of Big Blue hang from the ceiling of the Biodiversity Museum, comfortably reigning supreme over the Beaty’s two million specimens. She is indeed, visitors are told, a real blue whale skeleton, with the documentary of her discovery and cleaning playing on loop to prove it. But, like so many things, pinning down just what makes Big Blue authentic is incredibly tricky. What makes Big Blue – and other museum exhibits – the Real Thing is the commitment to scientific and cultural authenticity that underlies them, and has for more than a century.

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The desire to show audiences real whales and give them real whale stories was – is – certainly obvious in museums

like the Beaty here in the twenty-first century. But showing off real whales has a long history that reaches back to circus and sideshow acts that peddled whale shows along North America's highways and byways in the late nineteenth and early twentieth centuries. As early as 1873, the Great International Menagerie, Aquarium, and Circus, for example, touted its exhibit of 'A Leviathan Whale, a grand and magnificent specimen, the King of the Deep' as '... the only show in the world that exhibits a WHALE'. And by 'WHALE', the Menagerie meant an actual dead whale that was quasi-taxidermied and carted around from one American town to the next. Not to be outdone, the Burr Robbins Circus exhibited a giant papier-mâché whale a few years later. The two whales duelled their way across the United States for almost a decade, competing with each other for audiences and often picking up on each other's publicity.

At each town's stop, the Great International Menagerie would build a staging area for the whale exposition, with local carpenters as the exhibit's harbingers. (It would appear that the Great International Menagerie, Aquarium and Circus was an early adaptor of the 'If you build it, they will come' business strategy.) The show, the bustle of activity and the anticipation of the WHALE as something so singularly extraordinary never failed to draw huge crowds. The draw was enormous and, more to the point, the experience was personal. Step right up, ladies and gentlemen, and see for yourself this creature of the deep. You, your very own self, can tell others what real whales look like because you saw them here. The Menagerie's King of the Deep arrived in Columbus, Ohio, on 8 March 1881. The headlines in the *Columbus Dispatch* screamed, 'He is coming! He is coming! The Monster Whale! The Monarch Supreme of the Ocean! The Giant of the Gigantic Creation of the Universe! Don't Fail To Bring The Children!'

When the Menagerie's whale showed up, there was a mob scene. ('It requires a great deal of elbow room, because his whaleship is sixty feet long in the clear,' the *Dispatch* reported.) The exhibit focused its efforts on securing and displaying the whale, but not so much on explaining anything about whale biology to its audiences. Interestingly, though, it was the story of how the whale went from a living marine mammal to a dead exhibit travelling through Columbus that really captivated nineteenth-century menagerie-goers.

Visitors invariably wanted to know how the exhibit was possible. They wanted to know exactly how the whale's entrails were removed and replaced with first ice, then chemicals, how the sawdust underneath the whale corpse kept the leviathan's leaking in check, how yet more chemicals on the outside of the whale kept the skin from decomposing and how iron hoops within the whale's body kept His Whaleship from collapsing. The *Columbus Dispatch* reassured readers that the exhibit was 'free from unpleasant odor'.

In short, the whale wasn't really so much about the whale, but about how the whale's keepers and revenue collectors had so effectively cheated the decay of death, thus introducing audiences to the whale as the Real Thing, of sorts. The Menagerie whale was open for business at each railway stop, from 9 a.m until 9 p.m.

Although the more 'respectable' display of whales in a scientific context, for more 'cultured' audiences, began to enter museums like the American Museum of Natural History at the turn of the twentieth century, the era of *Music Man*-like whale showmanship was far from over. In the 1920s, Hugh Fowzer – an experienced, ever-enthusiastic sideshow entrepreneur – hatched the idea of putting a dead stuffed whale on a railway carriage, certain that audiences would leap at the chance to see such a rare oceanic creature.

(One Carl Terrell, a motordrome rider, claimed to have given Fowzer the idea for a whale show based on one Terrell claimed to have seen in Omaha in 1921 on a converted showboat. Terrell's claims were never taken very seriously.) Those earlier touring whales from the Great International Menagerie had been so successful, Fowzer reasoned, that adding one to his own enterprise ought to be practically money in the bank.

Fowzer teamed up with Wingy Counts, from Venice, California – known as 'One-Arm Wingy' in the papers – a sideshow fixer who was familiar with the ins and outs of putting together a marine exhibit. He had established several marine exhibits for other owners along the West Coast and his credentials, such as they were, were in perfect order. (Fun factoid: Counts gained his showmanship acclaim by wrestling an octopus in live shows.) Somewhere between 1921 and 1922, Fowzer put Counts in charge of pulling together his whale exhibit, and somehow Counts managed to secure a somewhat embalmed whale. Fowzer and Counts took their whale on tour, and within a couple of years the enterprise was so successful that they had two travelling exhibits that crisscrossed American's railways.

As Fowzer and Counts were working on their menagerie act, a second set of sideshow entrepreneurs was working to start taking its own dead whales on tour. But this begs the question of just how, exactly, one preserves a whale, which brings us to the story of Mr M. C. Hutton and wax-museum operator and self-made entrepreneur Mr Harold L. Anfenger. The estimated cost of embalming a whale in 1928 was staggering – something like \$10,000 – and Hutton balked at ponying up this kind of capital for what could most charitably be described as a whale of a gamble. Entrepreneur that he was, however, he offered four investors the 'opportunity' to buy into the whale exhibit

for a mere \$2,500 apiece. Money thus secured, Hutton bought a whale from a whaling ship's successful hunt and immediately had the cetacean towed into harbour. The commander of the whaling ship, Captain Dietrich, demanded – and more to the point collected – \$1,500 upfront for delivery of said whale and had nothing else to do with the entire business.

This is where the story of this particular whale gets a little bit complicated. Before his dealings with traveling whales, Anfenger had established a rather lucrative whale-based business in Long Beach, California. Anfenger contracted a crew of boatmen to anchor dead whales close to the beach, and for days the crew would row beachgoers out to see the carcasses at 25 cents per person. Tethered just offshore and subjected to the elements, the whales began very rapidly to shuffle off their mortal coils and the stench was considerable; consequently, Long Beach residents were relieved to have the whales towed back out to sea at the end of Anfenger's enterprise. When Hutton and Anfenger's whale was delivered, they argued about how to best preserve it for exhibition, eventually hiring an embalmer who poured barrels of formaldehyde and salt into the cetacean, claiming it was a sure-fire preservation method. The whale promptly exploded.

Undeterred, Hutton and Anfenger doubled down on their efforts to find ways to round out their travelling sideshow with a real dead whale, convinced that audiences would queue to see something so mysterious. And in fact, they eventually assembled a rather formidable whale pod of more or less preserved cetaceans, once the chief embalmer, Mr Griffith, had established the best ratio of formaldehyde and salt, thus ensuring that the whales wouldn't decay or detonate. Still, exhibiting dead whales to a curious public was a lot of work and required constant attention; one of the everyday chores for exhibit workers was to administer

daily doses of formaldehyde and salt, shooting the solution into the fleshy bits of the whale with foot-long hypodermic syringes. 'The giant tongues were the worst source of foul smell,' circus historian Fred Pfening Jr. notes in his history of circus menageries, 'but the tongues were deemed too important to remove.'

Fowzer's foray into these nautical show enterprises was a raging success – his gamble more than paid off, as did Hutton and Anfenger's. Fowzer had two whale units and the Pacific Whaling Company had nine. Like their nineteenth-century counterparts, the two whale exhibits often capitalised on each other's publicity. The exhibits travelled throughout the United States during the first half of the twentieth century with incredible financial success. The first of the Pacific Whaling Company's units grossed over \$100,000 in income during the six months of its initial exhibit in 1928. Eventually, Pacific bought out Counts to put a halt to the sniping of whale publicity, and by the 1930s, the Hutton and Anfenger enterprise diversified to support several different travelling units operating throughout the United States. Former sideshow lecturers were dressed up in nautically themed sea captains' costumes and schooled by a circus performer, Arthur Hoffman, in appropriately salty ocean vocabulary.

As the success of the whale exhibits gained momentum, the entire enterprise began to expand in scope. One of the new units was called a Modern Noah's Ark, and it boasted a two-headed cow and a female mentalist 'who will guess your age'. Another show in 1937 advertised 'Mammoth Marine Hippodrome and Congress of Unbelievable Biological Exhibitions' – its headlines boasted a mermaid, a flea circus, mummies from Egypt and a unicorn. Amid such specimens, something as 'mundane' as a real, stuffed and sort-of-leaking whale didn't quite headline the acts any

more. Audiences no longer looked at whales in these shows with awe and wonder, as they had at His Whaleship in the 1880s. By the end of the 1930s, Hutton and Anfenger began to cut back on their exhibits and by the 1940s, the legacy of whale showmanship was all but over. What counted as spectacle, it would seem, had changed. When Anfenger sold the railway carriages in the 1940s, disposing of the whales inside them was a serious problem for the new owners.

It's undeniable that, between the Great International Menagerie, the Modern Noah's Ark and Fowzer's travelling enterprises, thousands of people saw real whales. But they saw them the way they would see anything else at a travelling sideshow. These sideshow whales did not have their own unique biology and history, and were objects stripped from their natural contexts – they were merely the means to financial gain and simply spectacle for spectacle's sake. Where whaling had commercialised the different parts of whales, like their oil and bones, the early twentieth-century sideshow had monetised the possibility of seeing something real, such that it was.

These whales were real, sure. But they weren't the Real Thing – they didn't command or carry any sort of cultural or scientific cachet other than that of a sideshow oddity.

Back in the museum world, there was a burgeoning interest in introducing audiences to the life and history of whales, especially blue whales. What drew audiences now was authenticity – scientific authenticity, to be precise. Unlike the freewheeling world of sideshows, museums run by conservators, curators and biologists wanted authentically modelled and scientifically credible

specimens – and none more so than the blue whale. Simply due to the size of animal, the awe and wonder of nature provided its own cetacean propaganda. Isn't nature amazing, museum whale exhibits suggested to their visitors, and isn't nature spectacular? It was the same awe and spectacle of nature that, a few decades later, would inspire Disney's *True-Life Adventures*. What made the exhibit authentic was the specimen accurately rendered, preferably in context.

Museums were obsessed with the idea that their whale models – be it plaster, fibreglass, skeletal or papier mâché – must be as close to the real whales as possible. Museum whales, sniffed the institutional staff, were certainly not going to be amateur, pumped full of formaldehyde and salt. These would not be sideshow specimens that leaked on visitors and dripped with the failed dreams of entrepreneurial avarice. Museum whales, they contended, would be exhibits that combined truthful, accurate and authoritative accounts of whale life and biology – organisms with the moral and aesthetic demands of accuracy and, most importantly, based on real cetaceans. 'This process of categorization – real or fake, flesh or *paper-mâché*, true or false – was persistently present for exhibitors,' historian of science Michael Rossi describes of these early whale models, 'not least of all when [museum curators] endeavored to construct honest replicas of tremendous creatures, which spent most of their time obscured beneath the ocean.'

Preserving a whale is both insanely hard and incredibly complicated because its biology is so different from that of other animals. In land animals, the outer skins – the fur, feathers, scales and shells – give the animals their surface realism. Stuffed, posed and displayed, land animals in dioramas became expected features for museum-goers in the early twentieth century. By seeing what these animals

would have looked like in real life, audiences could easily believe that the still-life dioramas in museums were, in truth, authentic three-dimensional still-life portraits of the natural world. 'The animal is dead but not gone, refashioned but fundamentally still available,' historian Rachael Poliquin suggests in her history of taxidermy, *The Breathless Zoo*. 'The various genres of taxidermy were all created to satisfy a variety of longings for continued connection. The desire to capture beautiful forms, to tell stories about their importance, or to offer lessons in natural history all fundamentally shape how the resulting animal-things will be perceived and understood.'

Unlike other mammals, whales are completely devoid of hair (except for on their snouts, when they're born), and unlike other mammals, whales shed their skin by constantly sloughing off large sheets of it. Consequently, while the furry or scaly skins of most animals are relatively easy to preserve through taxidermy, the whale's dermis simply can't be preserved, due to its biology. (Sideshow organisers found this out the hard way, with their constant battle to keep the whales from leaking and the skin from decaying.) If a museum wanted an authentic whale that looked life-like, the museum would have to settle for a display that didn't necessarily contain parts of real whales.

This is where museums bifurcate both in what sort of real blue whale they show visitors and in how they show it. Some museums have simply opted to display a blue whale skeleton. This offers visitors the opportunity to see the animal's real bones – to gape at its gargantuan size and to wonder at its impressive shape. ('And it smelt. How it smelt! It smelt as if forty thousand freezing and soap works were holding a reception, with sewer systems as guests,' Canterbury Museum curator Edgar Waite wrote in 1908, while he worked to clean the stranded blue

whale that would eventually go to the Christchurch Museum in New Zealand.) With blue whale skeletons in their collections, museums could also appeal to scientific researchers who would measure and study the bones – such was the case with the British Museum in the early part of the twentieth century, and the Beaty Museum in the twenty-first.

The feedback between scientists actively ‘doing’ scientific research and the display of the blue whale as a scientific object ensured that the museum – as an institution – maintained its scientific authority and credibility. (As well as the outreach value of a whale seen by public audiences.) In other words, museum visitors would have confidence in the real-ness of the whale skeleton on display in the museum – and the prep that is implicit in displaying the skeleton – in a way that they wouldn’t when having themselves a gander at the travelling whales in railway exhibits.

But whale skeletons – even real ones – still require visitors to imagine the skeleton with muscle, skin and flesh. The bones were real ones, sure, but a skeleton suspended from the ceiling is not how one would really see a blue whale in nature. For the American Museum of Natural History as well as the Smithsonian, at the turn of the twentieth century the answer to this conundrum was to build replica models of whales – and build models they did. Indeed, building a replica of a blue whale – twice – introduced a whole host of issues to American Museum of Natural History curators. The original blue whale that was finished and displayed in the Museum in 1907, as well as its 1969 counterpart, were tricky to make real because a replica would not only have to look like a blue whale, but to behave like one as well.

‘They are building a whale at the Museum of Natural History,’ the *Wilkes-Barre Record* of Pennsylvania reported on 4 January 1907, ‘from wooden strips, iron rods, piano wires, paper, and glue. They are carpenters, horseshmiths, and wallpaper hangers and when the work has been done in rough, the naturalists will give the finishing touches.’ This American Museum of Natural History blue whale model was built out of expert science and natural history, as well as iron, wood and canvas, and a very believable papier-mâché exoskeleton of sorts. ‘First the whale was papered ... he got a nice coat of heavy pulp sheets, then a thin layer of red fibre with a little manila in it and, last of all, a thin coat,’ the paper informed its readers. ‘This was one of the queerest bits of paperhanging ever done in New York.’

The curators who commissioned this original blue whale, as well as the engineers and artists who built it, depended very much on the notes, photographs, plaster casts and measurements that whalers, scientists and naturalists had collected in the field. This was the case for all whale exhibits, as whales weren’t photographed underwater in their natural environments until as recently as the 1970s. Since curators were not able to transport whale corpses to study (the way that curators of other, smaller species might be able to), they relied heavily on notes, photographs and stories from both scientists who worked with whales and whalers who had a lot of practical whale knowledge. When the American Museum of Natural History built its model blue whale, it relied on a combination of scientific and artistic expertise to be properly authentic.

But, again, since the blue whale is such a huge animal, measuring, photographing and observing the mammal was no small feat. Blue whales are hard to measure and hard to weigh. It’s tricky to capture the entire whale in a

single photograph, and in a world of black-and-white photography, capturing the whale's blue-grey hues was impossible. As most whale observations were made by scientists on whaling expeditions (some scientists were even posted to such expeditions because this was one of the few ways to observe whales while they were alive), there was very little opportunity for scientists to observe whale behaviour. Most of the whales that were studied were the pre-processed, hunted carcasses amassed by whaling teams. Taken together, these logistical issues simply made it difficult for scientists to know things about whales, and if it's difficult to know things, it's even more difficult to accurately translate that perfunctory whale biology into a blue whale exhibit.

'In producing their model, exhibitors at the American Museum employed a patchwork of overlapping ... techniques,' Michael Rossi points out, 'to argue that their fabrication was as authentic – as truthful, accurate, authoritative, and morally and aesthetically worthy of display – as an exhibit containing a real, preserved cetacean.' The resulting blue whale replica was lauded by *Scientific American* and *Outlook* magazines for its authenticity and commitment to detail. It inspired generations of New York City schoolchildren and offered visitors a glimpse into life in the world's deep, deep oceans.

Fifty years later, the museum opted to update the blue whale by replacing it with a new model. On the one hand, the new model would reflect the scientific updates of five decades of research. On the other, the Smithsonian had recently installed a (28m) 92ft blue whale model and the American Museum of Natural History wasn't about to be outdone. (The 1907 model 'only' measured 25m/82ft in length and certainly wasn't going to be 'one-upped' by the Smithsonian.) All of the questions about real-ness and believability of the whale that fronted the museum

administration in its original blue whale model were asked, answered and asked again in its mid-century update.

When curator Richard Van Gelder of the American Museum of Natural History described his experiences of working to build the model of a blue whale for the museum (it went on display in 1969), he was frank about the parameters and limits of what it was possible to know about blue whales and certainly what it was possible to accurately build in a museum. ('So far as accuracy was concerned, I couldn't see much wrong with it, mainly because I had never seen a blue whale.') But despite the limits of blue whale knowledge, museums didn't just make up blue whales and stick them in the main halls of their buildings. The limits of whale knowledge resulted in accurate – authentic – blue whale exhibits being under constant negotiation.

For the American Museum of Natural History in the 1950s, trying to figure out how to modernise its blue whale exhibit, firstly there was the issue about the sort of pose to put the blue whale in. Should it be swimming? Eating? Diving? For years, the museum administration and its curators argued back and forth about the best way to balance the demands of authenticity and cost. In a burst of cynical disgust and snark, Van Gelder suggested to his bosses that the best way – the most *authentic* way – to display the blue whale would be to have a carcass of one on a sandy beach, with the sounds of gulls and sandpipers twittering while they picked away at its flesh. This was the way that most people had seen the elusive blue whale in nature – hence it would be truly real. To hear Van Gelder describe it, this was his modest proposal. By offering up something so inherently disgusting and ridiculous, everyone could go back to the business of creating an exhibit that was sensible.

But Van Gelder underestimated his bosses' stinginess. Because it was an exceptionally cheap way to display a model, the 'higher-ups', as Van Gelder called his bosses, green-lit the dead whale carcass exhibit with unabashed enthusiasm. Van Gelder spent months trying to convince the museum administration that what he had suggested in jest was in fact a horrible idea. He finally concocted a way to undermine the project by pitching the circle-of-life carcass idea to the Women's Committee of the American Museum of Natural History, a group that exerted considerable influence on the museum's administration due to its incredibly successful fundraising efforts. These ladies could make or break an exhibit.

'Finally, I told them about our "wonderful" beached-whale exhibit. I waxed poetic with word pictures of the beast. I told how the cries of the sea birds would slowly die out as sunset approached and then the ghostly glow of the bacteria would take over until at dawn, once more, the crash of the waves, and the rising chorus of hungry gulls would again take the shore,' Van Gelder recalled in 1970, several years after his presentation of the dead whale exhibit to the fundraising luncheon for the Women's Committee. 'I dropped my voice to a conspiratorial whisper. "We are even planning something never done before. A gentle breeze will waft the odor of the sea toward the visitors, to complete the attack on all the senses, and we are even going to try to simulate the odor of the decomposing whale, so that all can share in this wonderful experience *in totality*."'

According to Van Gelder's account, many of the ladies came close to losing their Chicken-à-la-King at this prospect.

As Van Gelder had hoped, there was only so much authenticity that museum-goers (and museum fundraisers) would tolerate. His boss was assaulted with a slew of

complaints about an exhibit that showed a whale corpse. ‘Why,’ the committee wanted to know, ‘did we have to have a beached whale – a simulated dead one? Why couldn’t we have a whale that looked like a live one (and wouldn’t smell ...)?’ Thus, the dead whale exhibit died its second death, reopening the question of what sort of blue whale model the American Museum of Natural History should have and what it should look like.

At the end of the day, *The Whale*, as the American Museum of Natural History model was dubbed, managed to balance authenticity, cost and administrative demands when it was posed in a jack-knife dive, attached to the museum’s ceiling with a stout pole. The scientific authenticity imbued in the model seems to have endured well the decades of blue whale research. *The Whale* was a public hit – 35,000 people visited the first Saturday that the exhibit was open to the public.

The success of *The Whale* followed a precedent that had been set five decades earlier, when the American Museum of Natural History displayed its first blue whale replica in 1907 – and it turns out that 1907 was a very busy year in the world of artificial whales. While the American Museum of Natural History was taking bows in the scientific and museum worlds for its first life-size model of a blue whale, the original 25m model – the one constructed from wood and angle iron, covered with papier mâché – New York engineer William Muhlig initiated a lawsuit in Manhattan’s municipal court over the ‘Only Preserved Greenland Whale Ever Seen in Captivity’.

Muhlig’s whale (its species is never specified) was a specimen that had, as reported by *The New York Times*,

been captured off the shores of Greenland and stuffed in Hamburg, Germany – all at great expense. The two owners of the whale – Christopher Rebhan and August Brahn – had offered Muhlig a share in the taxidermied cetacean. For only \$1,500, Muhlig could buy the opportunity to become the whale's manager as it toured the United States, collecting a salary of \$20 a week and a quarter of the profits from the show in return. Eager to make such a lucrative deal, Muhlig fronted \$500 and the whale began its tour of the eastern United States. Things with the whale went along swimmingly, as it were, until Harrisburg, Pennsylvania, when Muhlig discovered that the whale was not in fact a preserved Greenland whale at all. It was, according to court documents, 'a wooden dummy covered with canvas'.

Enraged, Muhlig put the fake whale up for auction, netting a paltry \$99 for his efforts. (Mrs Brahn, August's wife and Muhlig's cashier, promptly seized the cash as her salary.) In an effort to recoup his originally invested \$500 from Rebhan, Muhlig initiated legal action in the Manhattan municipal courts. Not only did he lose his lawsuit, but the courts also had a field day mocking him for his gullibility in falling for the scheme in the first place. Muhlig self-righteously pursued his claim, and on 7 June 1907, the Appellate Term of New York's Supreme Court ruled that the lower court had subjected Muhlig to undue ridicule in the case's original ruling.

However, this begs the question of how Muhlig's fake whale was so very different from the then-newly installed faux cetacean at the American Museum of Natural History. 'How can it be that [the AMNH's] wooden whale was scientifically authentic and admirable, while Muhlig's wooden whale was silly, and even actionable?' Michael Rossi ponders, neatly illustrating the dissonance of the two whales. 'Visitors to the American Museum were

actively encouraged to pretend that ... whale was the real thing. Muhlig's whale was humbug; [the whale at the AMNH] was cetology – but how?'

What makes one of these fake whales more real than the other? The intent? The methods of making it? The materials? The story that visitors take away from their experience? Some combination of everything?

How we think about the question of fakery or authenticity is important. Simply asking whether something is 'real' or 'not' (even 'authentic' or 'not') is not really helpful, nor is it particularly insightful. Each of the genuinely fake whales – like those from the Great International Menagerie and the American Museum of Natural History – balanced a series of trade-offs in cost, audience expectations and realness, putting each of the whales at a different place along the continuum of authenticity. As whale curators and showmen have found, there's only so much authenticity about whales that audiences are willing to tolerate – no leaking, dripping or smelling – even if those things are just as 'real' as the other parts of an exhibit.

Likewise, there's an expectation that a whale in a museum will be scientifically accurate and have a dignity and gravitas about it that certainly wouldn't be found in a circus sideshow. Showing audiences the Real Thing means showing audiences that the Real Thing is always a work in progress. For over a hundred years, blue whale skeletons and models have afforded non-experts the opportunity to see and wonder about the largest animal that ever lived on Earth. From the flimflamming whale sideshows to the fibreglass replica at the American Museum of Natural History, seeing the Real Thing has invested audiences in whales in ways that wouldn't have been possible otherwise.

This brings us back to the story of Big Blue at the Beaty Museum of Biodiversity in Vancouver and Dr Andrew

Trites's Ahab-like quest to make sure that the Real Thing was what was on display. Even though Big Blue's skull is a plaster model and other parts of her have been repaired, fixed and artistically rendered, there is little to dispute that visitors are seeing a real blue whale skeleton. What really sells the real authenticity of the Beaty's blue whale is not just Big Blue's skeleton – it's also the story that goes with her.