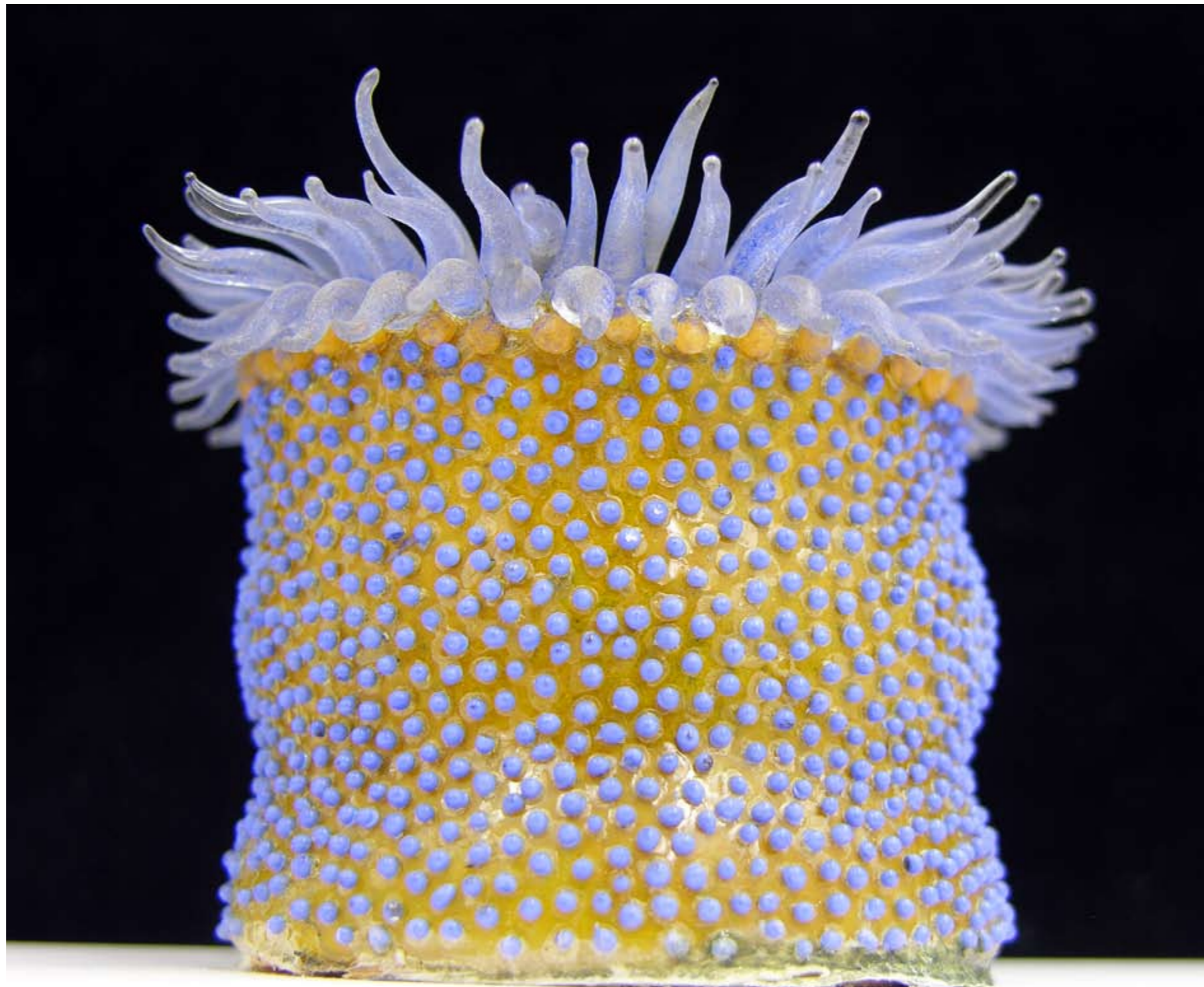
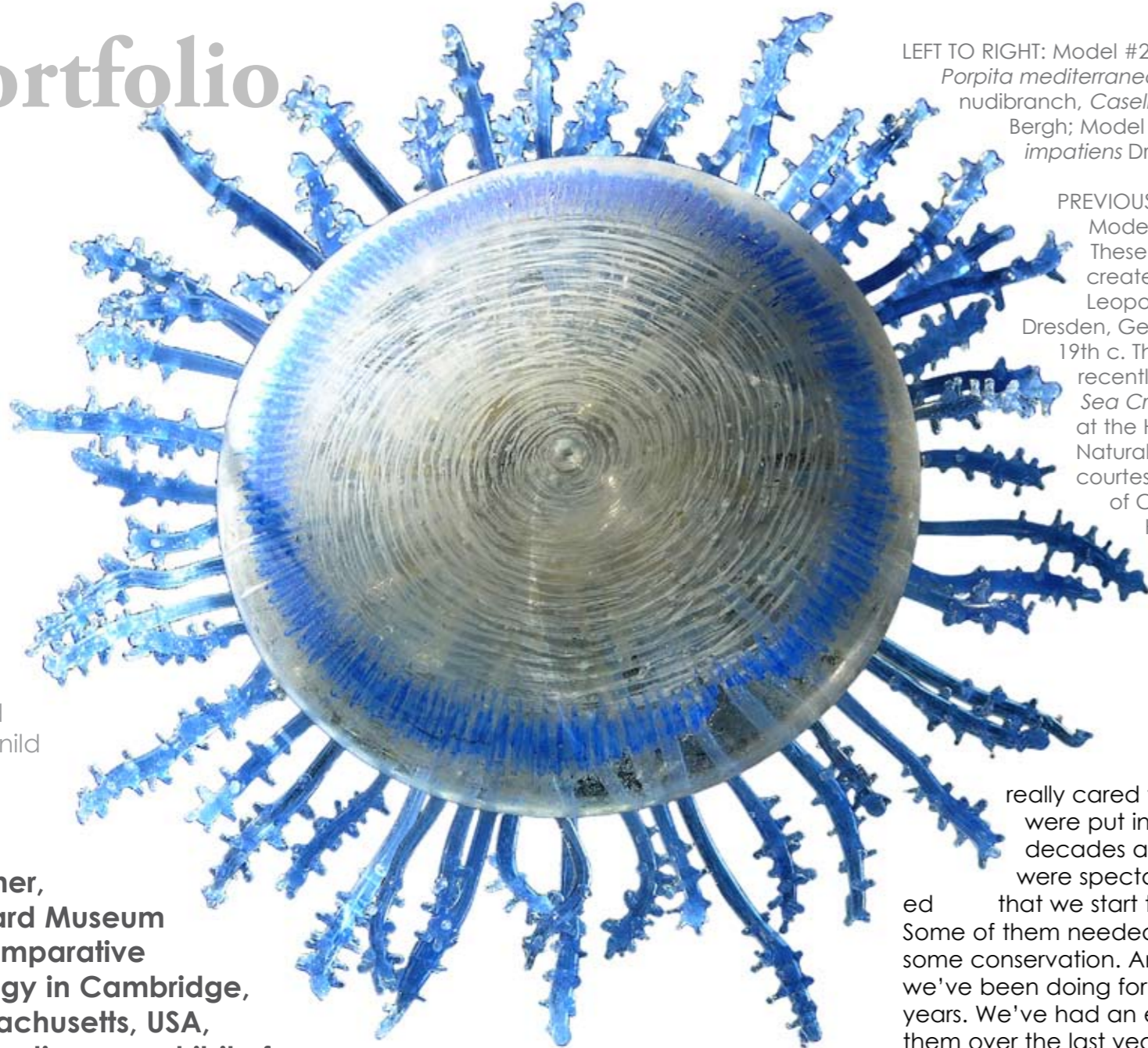


BLASCHKA



P O R T F O L I O





LEFT TO RIGHT: Model #216, sea jelly *Porpita mediterranea*; Model #378 nudibranch, *Casella philippinensis* Bergh; Model #91.3 *Sagartia impatiens* Drayton, Gosse.

PREVIOUS PAGE:

Model #81, Anemone
These glass models were created by Rudolph and Leopold Blaschka near Dresden, Germany, in the late 19th c. The models were recently displayed in the *Sea Creatures in Glass* exhibit at the Harvard Museum of Natural History. Photos courtesy of the Museum of Comparative Zoology, Harvard University

Text edited by Gunild Symes

This summer, Harvard Museum of Comparative Zoology in Cambridge, Massachusetts, USA, is mounting an exhibit of glass models of marine invertebrates made by the 17th century German master glassblowers, Leopold and Rudolf Blaschka of Dresden. Professor James Hanken is an evolutionary biologist and the director of the museum. He talked to X-RAY MAG about the exhibit and the Blaschka glass works.

JH: When I became director a few years ago, I requested a tour of all our collections. We have vast collections here. It's literally millions, more than 20 million

specimens of one sort or another. And in the course of receiving a tour of our invertebrate animal collections, I was shown several shoe boxes and other small boxes of glass animals, which were absolutely remarkable. I had not known that we even had these things. I knew that we had glass flowers—Harvard has a famous collection of glass flowers made by the Blaschka father and son team—but I had not known that they, at one time in their careers, had made glass invertebrate animals. And these were tucked away and not

really cared for very well. They were put in these boxes many decades ago. I thought they were spectacular and suggested that we start to clean them. Some of them needed some restoration, some conservation. And that's what we've been doing for the last several years. We've had an exhibit of some of them over the last year or two. We have about 420 specimens of which we put on exhibit around 60 in our public museum, the Harvard Museum of Natural History. And it was an extremely popular exhibit. I mean, they really are extraordinary specimens. They are anatomically correct, if you will; they're made exactly to life; their colors are accurate. They're exquisite.

That was in our temporary exhibit gallery. We had to remove that exhibit, but we just

installed in its place an exhibit about evolution, and we will be pulling out some of the glass animals to install near the evolution exhibit later this summer. One of the reasons is that the glass animals were extremely popular with the public and

many people were very, very disappointed when we took them away. So, by popular demand, we are bringing some back.

How many visitors did you have to that exhibit?

JH: We don't track the

number of visitors to a particular exhibit or to a particular room, but in the last year, we have had about 180,000 visitors, and actually our attendance figures have been going up steadily over the last several years in response to exhibits such as the glass animals.

What do you know about the Blaschkas, Leopold and his son, Rudolf?

JH: As I understand

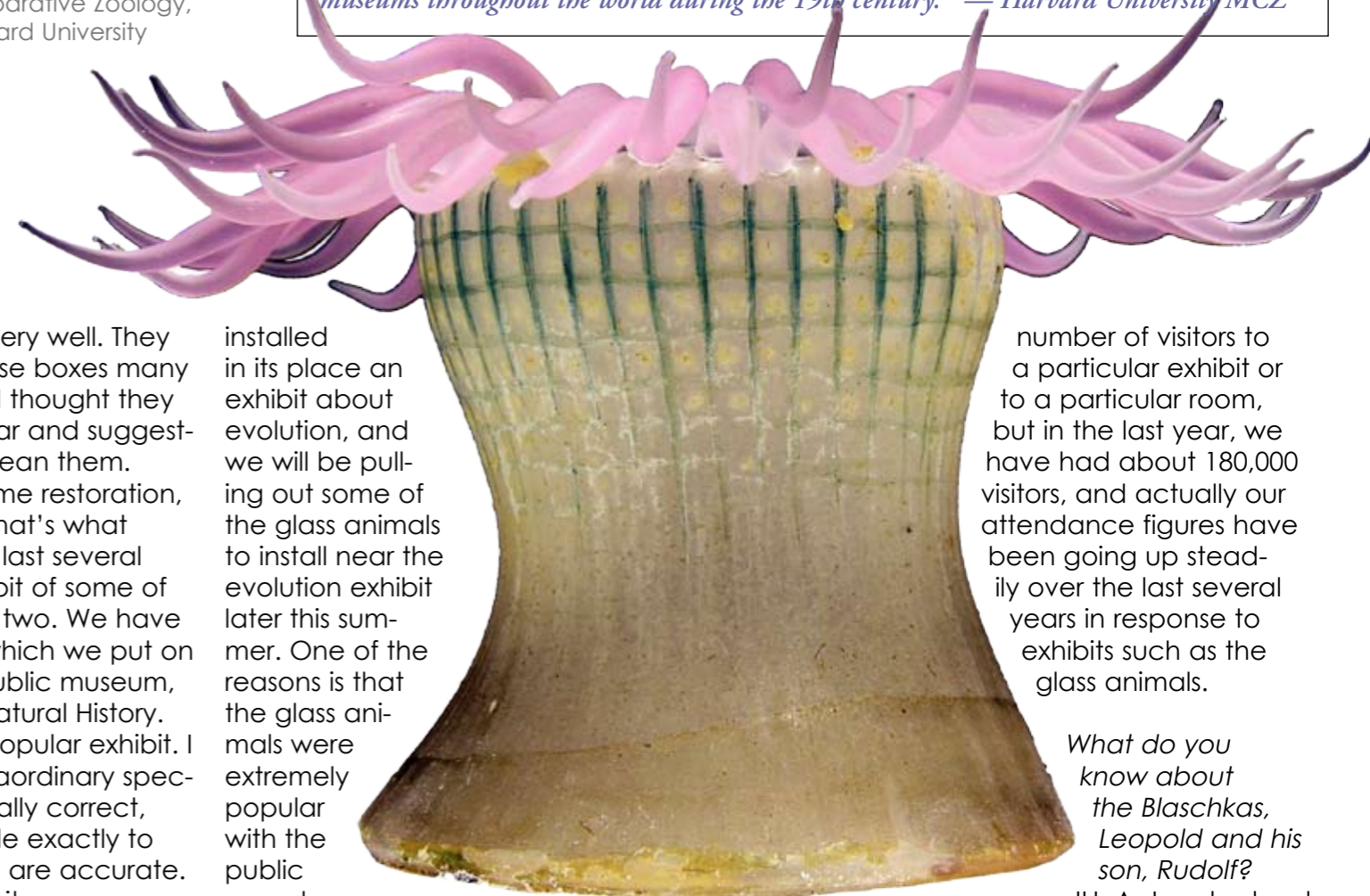
it, they came from a long and distinguished family of glassblowers in Dresden, Germany, beginning in the 15th century. By the late 19th century, it was the adult male in the family, Leopold, who was continuing the tradition, and he and his wife had a son, Rudolf, who basically adopted the same traditions of the family. They really had brought the craft



Blaschka

Leopold (left) and his son Rudolf Blaschka (right), about 1895. Image courtesy of the Botanical Museum, Harvard University, Cambridge, Massachusetts, USA

Many years before they were commissioned by Harvard University to make the "Glass Flowers," father and son artists Leopold and Rudolph Blaschka meticulously shaped glass and wire into lifelike models of marine animals. Renowned for their beauty and exacting detail, the Blaschka marine invertebrate models were commissioned by universities and museums throughout the world during the 19th century. — Harvard University MCZ





Chrysaora hysoscella. jellyfish model held at the Muséum de Genève. Photo by Philippe Wagneur



A model of the Portuguese Man-of-War jellyfish, *Physalia arethusa*, held at Amgueddfa Cymru, National Museum Wales, United Kingdom



LEFT: Model #221, *Velella lata*, Chamisso
BELOW: Model #325.3, *Pelagia noctiluca*

These models held by the Harvard Museum of Comparative Zoology were recently displayed in the *Sea Creatures in Glass* exhibit at the Harvard Museum of Natural History. Photos courtesy of the Museum of Comparative Zoology, Harvard University

of glassblowing to a real art, to a level of achievement and accomplishment, which, I think is safe to say, is no longer available today... really glassblowing perfection.

At that time, they had to do this for a living. They made among other things glass eyes for blind people. I mean, they had to do whatever they could to make a living blowing glass.

Leopold started making and selling the glass invertebrates in 1863, when he made the first display. Rudolf joined his father in the studio officially in 1876 (at age 19). The Blaschkas used to sell the glass models through biological catalogs.

Remember, this is a time in the last half of the 19th century after Darwin had published, *The Origin of Species*, and there were all kinds of other discoverers from Germany, other

European and North American countries, who were going all over the world bringing back stories of exotic animals, plants and new land. So, there was tremendous public interest in natural history and discovery. As a result, there was a large interest in these models. Of course, we are talking about a time when photography was just in its beginnings; there was just black and white photography. There was no color photography, no video, no ways to depict to people the vivid colors and shapes of animals and certainly not ones that were found in the ocean in the water. So, these models were as good as it got in those days. They were also used as teaching tools. So, biology classes, mostly in universities, I suppose, would purchase these models as teaching aides. They were sold that way by mail order in catalogs around the world.

At some point in the 1880s, people here at Harvard suggested that the Blaschkas start making flowers, which they did, and they also were exquisite. They were just spectacular. But at that point, a wealthy family in Boston, who were associated with Harvard, made the Blaschka father and son team an offer they could not refuse, which was, if they would only make flowers, glass flowers, and only make them for Harvard University, this family in Boston would take care of them financially for the rest of their lives.

Really?
What a deal!

JH: Yes. So, at that point, the Blaschkas stopped making glass animals. This was a family that was buying these glass flowers for our botanical museum. I guess, they didn't have any interest in glass animals. So, the Blaschkas, from that day forward, made only glass flowers, and they made, literally, thousands of them. We have them here—between 4,000-5,000 glass flowers.

As a result, the glass animals were no longer made. There were some large collections of them in Dresden, as I understand it; there is our collection here; Cornell University in New York State has some more; there's another collection of them in the Natural History Museum in London; and let's see, I think, in Scotland there's also another collection of them. We just learned that there are over 800 models in Ireland, and there are about 350 at the Boston Museum of Science. Unfortunately and tragically, the collection in Dresden was lost in the bombing during World War II.

Yet, there are still additional models here and there. You read stories every once in a while where there are people who discover them. There was one that came to my attention a couple of years ago. A university, I think it was the University of Wisconsin in the Midwest

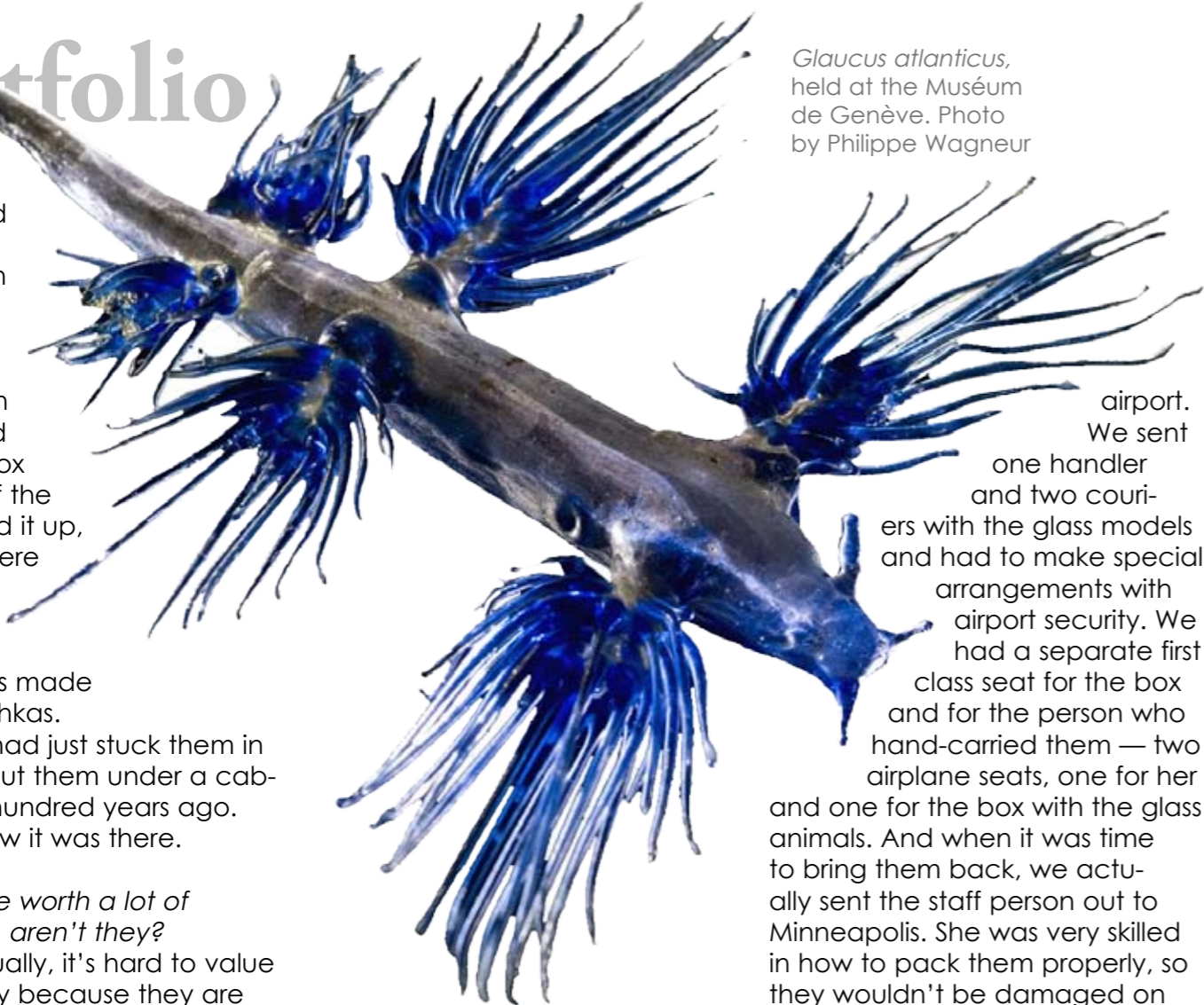


of the United States — somebody in the museum saw a box underneath a cabinet on the floor and pulled this box out, blew off the dust, opened it up, and there were these glass models. They were glass animals made by the Blaschkas. Somebody had just stuck them in a box and put them under a cabinet, say, a hundred years ago. Nobody knew it was there.

They must be worth a lot of money now, aren't they?
 JH: Yes, actually, it's hard to value them, literally because they are never sold, but they're priceless artifacts. All the universities and museums... nobody is interested in selling them. So, as a result, it is hard to put an actual price on them. They're priceless. They're invaluable. But we do have, well, I don't know what we do for insurance purposes, but we do declare them. But I don't know what price is put on them. I honestly don't.

We're also extremely careful with them, as you can imagine, because they're glass. They're very delicate. By and large, we don't let them out of

Glaucus atlanticus, held at the Muséum de Genève. Photo by Philippe Wagneur



airport. We sent one handler and two couriers with the glass models and had to make special arrangements with airport security. We had a separate first class seat for the box and for the person who hand-carried them — two airplane seats, one for her and one for the box with the glass animals. And when it was time to bring them back, we actually sent the staff person out to Minneapolis. She was very skilled in how to pack them properly, so they wouldn't be damaged on the way back. And we basically repeated that very complicated transaction, or transportation, bringing them back here.

As a biologist and an expert, how do you rate the educational value of the glass models made by the Blaschkas?

JH: Oh, they're remarkable! They're one of a kind. They are interesting teaching tools in several respects. In their day, they were the most modern, up-to-date way to display biological diversity. Remember, all of them are marine invertebrates, so they

are found underwater often on the ocean bottom, and they were the only means of conveying to the general public and all the students, what the animals looked like, their variation. In fact, we do have a few specimens that are of kinds of species that are soft-bodied — that when you bring them up out of the ocean, and certainly when they die, they lose their color and they lose their shape, and when you preserve them in fixative, they just don't look anything like what they really look like in life.

Yes, and how did the Blaschkas know what the animals looked like?

JH: As far as the plants go, people would send them live plants and seeds for them to plant there, and they would take notes to themselves about the colors. For the marine animals, they used

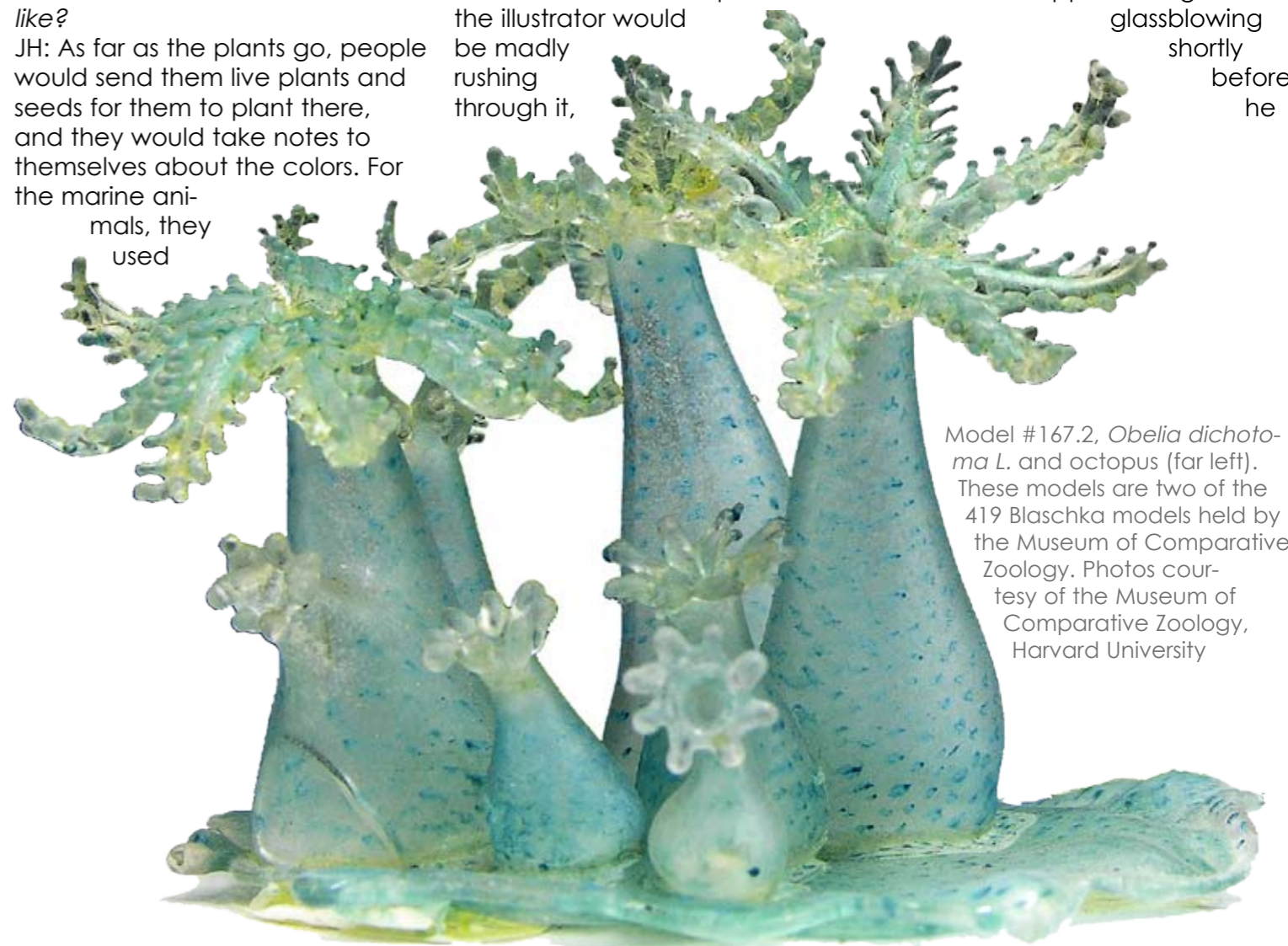
drawings from naturalists and their own drawings from traveling. They also kept live animals in their studio in marine aquariums to observe and sketch.

It was not uncommon in the 19th century when explorations would head out to different parts of the world. They would bring along illustrators. We mounted some expeditions from the 19th century, including to South America and the Amazon, and, literally, you would read these accounts where the illustrator would be up on deck, and as the workers would bring up all these... this mess up and dump the fish on the deck of the ship, the illustrator would be madly rushing through it,

doing a quick sketch of what the animal looked like; wouldn't have time to do the detailed color, but would make notes about the different colors on the parts of the fish. So, maybe a similar kind of activity occurred, although you don't read too much about it, and the Blaschkas certainly didn't make any extensive travels of this nature.

Did they have apprentices or assistants working with them?

JH: From what we know, they had a system. But they did the glassblowing themselves. In fact, when Rudolf, the son, finally died—he stopped doing the glassblowing shortly before he



Model #167.2, *Obelia dichotoma* L. and octopus (far left). These models are two of the 419 Blaschka models held by the Museum of Comparative Zoology. Photos courtesy of the Museum of Comparative Zoology, Harvard University





Some of the many glass models of marine invertebrates created by Rudolph and Leopold Blaschka near Dresden, Germany in the late 19th century. This shows one of many drawers in the Museum of Comparative Zoology, where the marine models have been stored for over a century. A small exhibit of some of the University's 419 models, some of which have never before been seen by the public, will soon go on display at the Harvard Museum of Natural History in Cambridge, MA. Photo Credit: Museum of Comparative Zoology, Harvard University

died—Harvard made arrangements for them, the surviving family members, to send here, the Blaschkas' tools and their work bench. We had them on display for many years. It was remarkable, because you look at it, and what you're talking about is just a wooden bench with a bellows underneath that produced the fire, there was an alcohol burning lamp and a few tweezers, and that was it!

Speaking as an expert in the field, what role do the Blaschkas' glass invertebrates play in the museum's exhibits?

JH: We've included them partly because Harvard is a historically rich university—as you can imagine, it's been around for so long. But particularly in evolutionary biology, we have been studying evolutionary biology, and to some extent, leading the field in evolutionary biology for more than 100 years. People

like Ernst W. Mayr (evolutionary biologist from Germany, 1904-2005), Edward O. Wilson (Harvard biologist, 1929-present), Stephen Jay Gould (American paleontologist, evolutionary biologist and science historian, 1941-2002)—these men were all curators here in the Museum of Comparative Zoology. So, we are very proud of our past and our traditions, and what has happened here, and all of our collections. We were in business, if you

Blaschka

will, during this great age of exploration in the 19th century. So, we have vast collections, which were accumulated for scientific research purposes, and the glass animals, while they were obtained mostly for exhibit purposes or teaching purposes, are part of these collections. They are just part of this very rich repository of material from the 19th century and are still considered very important today. It's a means for us in educating people about the history of evolutionary biology, frankly.

How ideal that Harvard was participating during that very exciting era of discovery and the time of Darwin...

JH: Yes, and the great irony, of course, is that while we are, if you will, devout champions of evolutionary biology and Darwin (today), the man who founded the Harvard Museum of Comparative Zoology in 1859, Louis Agassiz (paleontologist, glaciologist and geologist from Switzerland, 1807-1873), was a fierce opponent of Darwin's and a denier of evolution. So, Louis Agassiz—I'm sure if he were alive today—would just be disgusted with what's happened to his museum!

MCZ museum director, Dr James Hanken, is an evolutionary biologist at Harvard University and is a specialist in amphibians, frogs and salamanders. He does both anatomical studies and molecular studies, but also describes new species, conducting field work in different parts of the world where amphibians are not well known, or haven't been well-studied—where he and his colleagues believe there are many undescribed species. They have discovered many new species of amphibians, frogs and salamanders. They name them and study their evolution and variation.

For more information, visit the websites of the museums at Harvard University below: The Museum of Comparative Zoology www.mcz.harvard.edu/index.html Harvard Museum of Natural History www.hmn.harvard.edu ■

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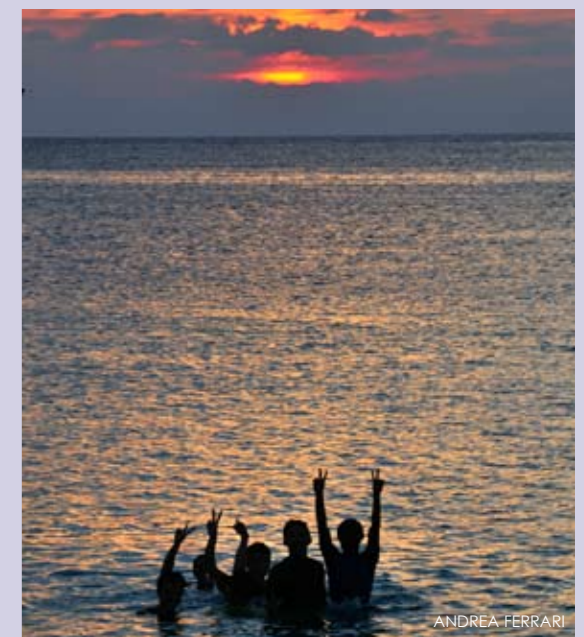
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