

# LEOPOLD AND RUDOLF **Blaschka** A Legacy in Glass

By Darryle Jadaa

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*Blaschka glass model*

**I**t seems fitting that for an issue titled *Beyond Beads* that I write of something not just beyond beads but beyond art as well. I am speaking of the work of the Blaschkas which encompasses both the realms of art and science. Their work has been described as “an artistic marvel in the field of science and a scientific marvel in the field of art.” It continues to amaze and educate scientists and artists alike.

Leopold Blaschka was born in 1822 in Bohemia. At an early age, he showed artistic aptitude and was apprenticed to a gemcutter and goldsmith. Later, he joined the family business of making glass ornaments and glass eyes. His family had a long history of working with glass, dating back to 15th century Venice. His early work in the family business consisted of making costume jewelry from glass and metal. His son, Rudolf Blaschka,

was born in 1857 and the family moved to Dresden, Germany in order to provide better educational opportunities for their son. Once in Germany, Leopold began making glass models of exotic flowers. Prince Camille de Rohan learned of his work and commissioned Leopold to create 100 models of orchids for his personal collection. Gradually as Leopold's reputation spread, he began a mail order business to sell marine invertebrate models. In 1876, Rudolf Blaschka joined the family business and began assisting his father in the creation of marine models. They were very prolific and produced their models in a production line, completing many small sections before proceeding to the next aspect of a model. In 1880, they produced 131 marine invertebrates (jellyfish, sea slugs, and others) for the Boston Society of Natural History Museum in addition to all their other orders.



*Blaschka family*



*Synapta glabra*



*Tubularia indivisa*



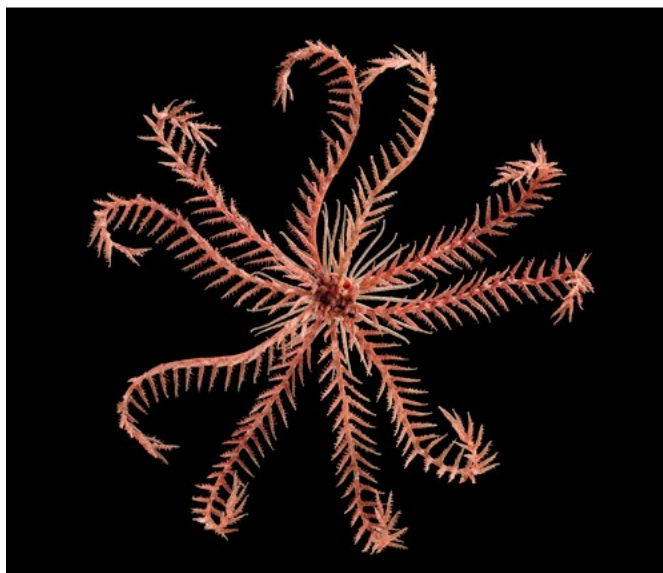
*Bunodes crispata*



*Physophora magnifica*



*Octopus Salutii*



*Comatula Mediterranea*



*Ommastrephes sagittatus*

In the 19th century in Europe and America there was a great interest in science and education. New museums were built and open to the public for the first time. The curators of natural history museums, however, had a challenge to provide realistic specimens. Marine invertebrates such as octopus and jellyfish were preserved in alcohol and inevitably lost their shape and color.

Models of papier mâché or wax were not precise enough in detail nor were they very permanent. Dried and preserved plants did not convey the beauty and structure of the original flowers. Dr. Goodale, the new curator for the Botanical Museum at Harvard, saw the Blaschka glass replicas of marine invertebrates and realized that this was the perfect medium with which to represent botanical specimens.

In 1886, he travelled to Dresden, Germany to ask the Blaschkas to create botanical models for the Harvard museum. Reportedly, the Blaschkas were

at first unwilling to undertake this enterprise as their business of selling marine invertebrates was extremely successful. Eventually, they were persuaded to send some test models to the United States. Unfortunately, these models arrived badly damaged, in part, by being examined by Customs. However, Dr. Goodale saw the intrinsic value in these beautiful creations and showed them to a benefactor of the museum, Mrs. Ware. She had a love of botany and science and agreed to finance the consignment of the models for the museum. Arrangements were made for future packages to be opened at the museum with a Customs official present.

In 1890, Harvard was able to secure an exclusive 10-year contract with the Blaschkas to create botanical models solely for Harvard. Through subsequent contract extensions, the Blaschkas made botanical models for the rest of their career, never to return to zoological models. Over 4,400 models were created for Harvard from 1890 until 1939.



*Blaschka glass flower exhibit - Harvard Museum of Natural History*

In a letter to the Ware family, Dr. Goodale described the framework process of the Blaschkas. "The work-tables are covered with rods and tubes of glass, and blocks of colored glass, and spools of wire of different sorts. The bellows under the table are of the ordinary sort used by glassworkers and the blast-tube is a very simple one of glass.

"The lamp is made of a tin cup containing a wick, and solid paraffin which melts at a pretty low temperature is used as the fuel. In making the Phlox which they asked me to bring to you and your mother, they drew first of all a rough sketch of the relations of all the flowers to each other and to the leaves, and then began to mix some glass with colors to get the right tints. The corolla is drawn and formed from a tube of glass. Then the petals are formed and melted to the tube of the corolla. The stamens are melted in next, and then the whole thing is placed in an annealing oven to remain for a few hours.

"It took Mr. B. just an hour and a half to make the tubes and petals of the three flowers. It required about an hour to put in the stamens and add the calyx. Next, the buds with their twists are made and all are fastened to wires covered in glass. All of these are next fastened to a stem with leaves and the product is then ready for a little paint which is added with great skill where it is required. The molding of the shapes is effected by means of ordinary pincers and tweezers. With these clumsy tools they fashion the flat plates and turn them in any way they please. With little



*Blaschka glass model*



*Blaschka glass model*

needles fastened in handles, they make the grooves and lines and figurings of the edges. But although you may see him touch a flat piece of glass with his little metallic tools, you know that it is no ordinary touch which suddenly shapes it into a living form.”



*Blaschka glass model*



*Blaschka glass model*



*Blaschka glass model*

If you are interested in seeing how lampwork was done in the 1800s, you can take a look at this Corning Museum of Glass (CMOG) video. This is very similar to the Blaschka set-up which is on display in the CMOG exhibition *Fragile Legacy: The Marine Invertebrate Glass Models of Leopold and Rudolf Blaschka*. <https://www.youtube.com/watch?v=Y7cwdXpGWHU>

Over more than 70 years, the Blaschkas created thousands of models. In the early years, Leopold used colored glass for the jewelry flowers and glass eyes. For the marine invertebrates they used primarily clear glass which was either painted or enameled. Their technique was so adept that in some cases a microscope is needed to determine which process was used. The early flowers created for Harvard were also made using clear glass, although Rudolf returned to using colored glass once his father passed away.

The glass models are incredibly thin, in places as thin as 1mm. Soda lime glass was commonly used although lead-based and mixed alkali glass were also employed, sometimes within the same piece. For example, the base may be soda lime glass while small details created in lead glass may be fused or glued on using animal-based adhesives. In addition to this, paper, shells, string, and cotton batting were also incorporated into the pieces. The Blaschkas used whatever they could to achieve the detailed effect they desired. For example, the webbing of a squid is created with paper while the base of another piece incorporates real shells.

They created their own recipes for the glass, glue, paint, and enamels, and these secrets were lost once Rudolf Blaschka passed away in 1939. As such, conservation of these delicate

works is extremely challenging. In addition, the last century has taken a toll on these amazing glass models. They have been handled by students and scientists, transported from place to place, and at times, forgotten in museum drawers. Many have been lost to fire, flood, and World War II. Efforts are currently ongoing to restore these delicate works in numerous organizations, and in particular, in the conservator laboratory in the Corning Museum of Glass.

Blaschka models can be found in museums and collections all over the world. Cornell has a large selection of marine invertebrates as does the Corning Museum of Glass. The Harvard Museum of Natural History has displayed their collection of botanical models for more than a century. Recently, however, the Museum has extensively renovated the space and has reopened the Glass Flowers exhibition.



*Blaschka glass model*



*Glass Flower exhibit -  
Harvard Museum of Natural History*

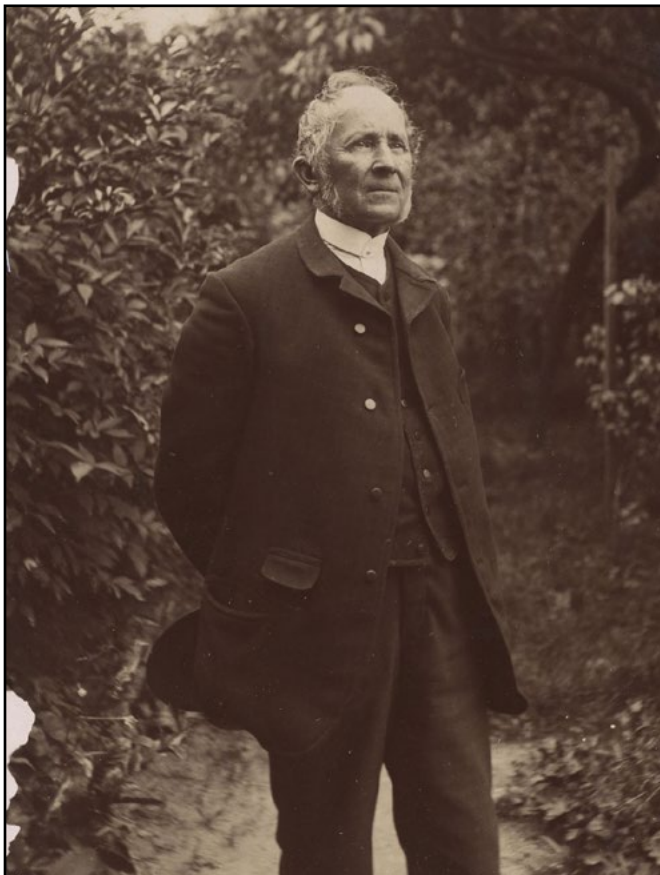


*Glass Flower exhibit - Harvard Museum of Natural History*

There are new wood cabinets, state-of-the-art lighting and display features, new flooring, and a new ventilation system. Parts of the exhibit will be rotated to tell different stories. The current display includes specimens from the pollination series. This renovation, as well as the recent exhibits at CMOG, have brought a new vitality to the work of the Blaschkas. With the help of many individuals and corporations, the legacy of the Blaschkas will live on so that we and future generations can marvel at their skill and dedication to the worlds of both science and art.



*Rudolf Blaschka*



*Leopold Blaschka*



*Blaschka family home*



So many people have been incredibly helpful in assisting me with this article. At the [Corning Museum of Glass](#), Kim Thompson (Media & Public Relations Manager) not only provided me with the photos of marine invertebrates that are shown in this article, but she also set up a conference call with some experts to answer my questions. Thanks so much to Eric Goldschmidt (Properties of Glass Programs Supervisor) and Astrid Van Giffen (Associate Conservator) for taking your time to talk with me. Also, Blue Magruder (Director of Public Affairs and Marketing at [Harvard Museum of Natural History](#)) provided me with lovely images of the new exhibits at Harvard and then introduced me to Lisa DeCesare (Head of Archives and Public Services at Harvard University Herbaria) who kindly arranged for the historical photos of the Blaschkas. Thanks to all of you for being so very helpful – you made writing this article so enjoyable!

## PHOTOGRAPHY CREDITS:

All plant photographs are courtesy of the President and Fellows, Harvard College

Historical photographs of Rudolf and Leopold are courtesy of the Rudolf and Leopold Archives, Harvard University, Cambridge, Massachusetts, USA

### **Sea life photographs:**

Specimen of Blaschka Marine Life: *Comatula Mediterranea* (Nr. 250), Leopold and Rudolf Blaschka, Dresden Germany, 1885. Lent by Cornell University, Department of Ecology and Evolutionary Biology. L.17.3.63-10.

Specimen of Blaschka Marine Life: *Bunodes crispera* (Nr. 45), Leopold and Rudolf Blaschka, Dresden Germany, 1885. Lent by Cornell University, Department of Ecology and Evolutionary Biology. L.17.3.63-71.

Specimen of Blaschka Marine Life: *Ommastrephes sagittatus* (Nr. 578), Leopold and Rudolf Blaschka, Dresden Germany, 1885. Lent by Cornell University, Department of Ecology and Evolutionary Biology. L.17.3.63-218.

Specimen of Blaschka Marine Life: *Synapta glabra* (Nr. 284), Leopold and Rudolf Blaschka, Dresden Germany, 1885. Lent by Cornell University, Department of Ecology and Evolutionary Biology. L.17.3.63-20.

Specimen of Blaschka Marine Life: *Physophora magnifica* (Nr. 213), Leopold and Rudolf Blaschka, Dresden Germany, 1885. Lent by Cornell University, Department of Ecology and Evolutionary Biology. L.17.3.63-516.

Specimen of Blaschka Marine Life: *Octopus Salutii* (Nr. 573), Leopold and Rudolf Blaschka, Dresden Germany, 1885. Lent by Cornell University, Department of Ecology and Evolutionary Biology. L.17.3.63-46.

Specimen of Blaschka Marine Life: *Ulactis muscosa* (Nr. 116), Leopold and Rudolf Blaschka, Dresden Germany, 1885. Lent by Cornell University, Department of Ecology and Evolutionary Biology. L.17.3.63-54.

## ABOUT THE AUTHOR



Darryle Jadaa is a Canadian lampworker who has been exploring glass since 2010. She has always been interested in art and sculpture and is an accomplished woodcarver. Once she discovered glass, she focused all her attentions on learning this medium. She has been very fortunate to study with some well-known lampworkers such as Corina Tettinger, Astrid Riedel, Joy Munshower, and Stephanie Sersich.

Darryle is also a Doctor of Clinical Psychology who has retired to pursue her love of glass. She is a strong supporter of Beads of Courage and loves to make beads for the kids!

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