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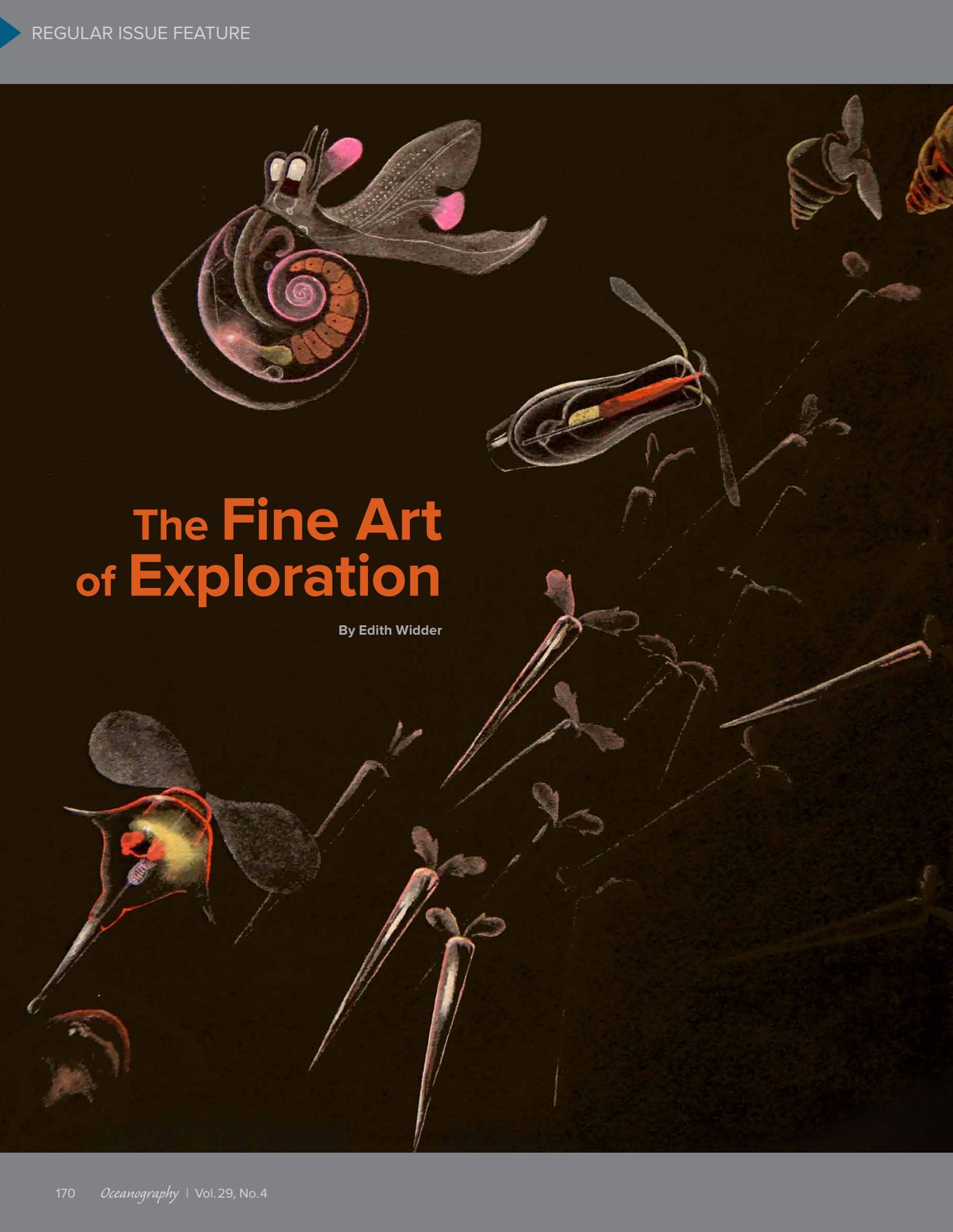
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The Fine Art of Exploration

By Edith Widder

ABSTRACT. Else Bostelmann was the artist who created the iconic imagery depicting William Beebe's record-breaking bathysphere dives off Bermuda in the 1930s. Although she has been largely relegated to history's footnotes, the discovery of a cache of her works and papers provides some new insights into her life and the part she played in the history of deep-sea exploration.

A few years ago, a physical oceanographer friend of mine gave a public lecture on the tides. He did a masterful job of explaining the phenomenon, but the part of his lecture that I remember best was when he described his pilgrimage to the Bay of Fundy in Canada, the place on Earth credited with the most extreme tides. He was looking forward to this trip and carefully timed it so he would arrive early enough to find a parking space with plenty of time to spare before the peak tide. What stuck with me was his utter bafflement at the fact that the parking lot was empty, and he was the only person there to witness what he viewed as one of the natural wonders of the world.

I had a similar sense of bafflement when I first visited the bathyscaphe *Trieste* at the US Navy's National Museum in Washington, DC. For those who haven't made this pilgrimage, I should warn you, it's not easy to find. When I finally did find it, I was amazed to discover I was the only person in the museum. I had to wait half an hour before somebody finally came by whom I could ask to take my picture standing next to this famous relic of deep-sea exploration: the vehicle that in 1960 carried Don Walsh and Jacques Piccard to the deepest point in the ocean.

We in oceanography often bemoan the pitiful budget allotted for ocean exploration compared to space exploration, but we don't have to look very far to see that part of the problem is that the NASA public relations machine dwarfs our own stumbling efforts. A case in point is the

ignominious handling of the bathysphere that transported William Beebe and Otis Barton into the ocean off Bermuda in 1930 to make their record-breaking dives and the first direct observations of life in the deep sea (Figure 1). Instead of being duly memorialized as a chariot of the gods, the bathysphere has had a bumpy history; it includes having been used to test the impacts of underwater explosions during World War II and being misplaced from 1994 until 2005, when it turned up hidden away under the Coney Island rollercoaster. Thankfully, it's now on display at the New York Aquarium, but compare this to NASA's various museums, including the Johnson Space Center, the Goddard Visitor Center, and the Smithsonian's National Air and Space Museum, that conserve and memorialize every possible artifact related to space exploration—including astronauts' socks, toothbrushes, and disposable underwear!

We know we need to get better at contextualizing our science. A step in the right direction would be to do a better job of preserving our historical artifacts and sharing them with the public in a way that will excite the kind of thrill that NASA is so good at eliciting. With that in mind, I share here an unexpected find of some precious artifacts of deep-sea exploration history.

Everyone wants to find a hidden treasure. Anyone who has will tell you the sweetest part of finding treasure is the process of discovery. Mine began over breakfast with a friend of mine, an artist named Janeen Mason. Janeen had just illustrated a children's book about fish, which had prompted a fellow artist friend of hers to mention a bunch of old paintings that she had in her closet that included a lot of fish paintings by her husband's great grandmother. She

mentioned that some of those paintings had been published in *National Geographic*. That got my attention. I asked if there was any chance it was Else Bostelmann. Janeen didn't know, but said she would find out and get back to me. When she did, I was delighted to discover it was in fact Bostelmann, and Janeen set up an appointment for me to visit her friend's apartment in Miami.

I first became familiar with Bostelmann from her illustrations in William Beebe's classic *Half-Mile Down* (1934), the book in which he described his record breaking dives. Most deep-sea scientists recognize those paintings. Along with Beebe's evocative prose, they helped open a portal to an alien world. Beebe was someone who could never be accused of not being able to contextualize the moment for his audience, as is clearly evident in his description of his first deep dive with Barton in the bathysphere and the moment they reached the heretofore unimaginable depth of 700 feet:

Ever since the beginnings of human history, when first the Phoenicians dared to sail the open sea, thousands upon thousands of human beings had reached the depth at which we were now suspended, and had passed on to lower levels. But all of these were dead, drowned victims of war, tempest, or other Acts of God. We were the first living men to look out at the strange illumination: And it was stranger than any imagination could have conceived.

The utter strangeness of all he saw posed a challenge for Beebe, because even such a master of the spoken and written word found it nearly impossible to describe the scenes he witnessed out the bathysphere's port to an audience that knew nothing of deep-sea life. That's where Bostelmann came in. Bostelmann drew what Beebe saw, and her artwork appeared not only in *Half-Mile Down* but also in a series of widely read articles that Beebe wrote for *National Geographic* in the 1930s.

FACING PAGE. Study in gouache of pelagic snails on a black background (28.6 × 36.2 cm) by Else Bostelmann. These detailed drawings are based on careful examination of trawled specimens, including a dagger-shaped *Creseis*, a coiled *Limacina*, an eggplant-shaped *Cuvierina columella*, and shield-shaped cavolinids.

He described their creative process in *Half-Mile Down*:

Soon after I returned to the surface I reviewed my telephoned notes, especially of the several new fish of which I had been given such excellent sights. I added all the details that came to mind. Then, with my artist Mrs. Bostelmann, I went into an artistic huddle, made scrawling attempts myself, and then carefully corrected her trained drawing. Little by little my brain fish materialized, its proportions, size, color, lights, fins interdigitated with those of my memory, and we have a splendid finished painting, which represents the vision in front of my window at 11:52 in the morning of August eleventh [1934], 1900 feet below the surface of the Atlantic Ocean.*

*The “telephone” was a cable with a head set on either end that ran between the bathysphere and the surface ship so that Beebe could dictate his observations to his assistant topside.

That was pretty much all I knew about Else Bostelmann when I knocked on the door of that apartment in Miami. What

I found behind that door was a lot more than the few sketch books and discarded drawings that I was expecting. This was the motherlode! It included examples of Bostelmann’s renditions of deep-sea fauna on black backgrounds, which are known as the “black paintings” (see figures). I had been thrilled to see some of these paintings several years before when they were on temporary display at the Monterey Bay Aquarium as part of a deep-sea exhibit. Those were some of the originals published in *Half Mile Down*, but the ones that I was holding in my hands had never appeared in any publication, so far as I knew. One, labeled “Fairy Fish” on the back, was a stunning, detailed study of two *Dolichopteryx* (Opisthoproctidae), remarkable deep-sea fish with tubular eyes that are commonly known as barrel-eyes or spook fish (Figure 2). Later, looking in *Half-Mile Down* for mention of these fish, I found an instance where Beebe deployed trawl nets at the site where he had been diving in the bathysphere hours earlier. In part of that haul he describes “living, gay-colored, semi-transparent telescope-eyed *Dolichopteryx*, the Long-finned Ghostfish, probably a

new species. It was the sixteenth of the whole genus to be taken by man, and the first ever to be seen alive.”

Access to trawled specimens like these was a critical component of Bostelmann’s ability to recreate the deep-sea scenes that Beebe described. Unlike the “brain fish,” which Beebe had to create from memory because it resembled nothing he had seen before, most of Bostelmann’s paintings included exquisite detail right down to the correct number of fin rays and photophores and other features too fine to have been based on Beebe’s verbal descriptions. This was possible because trawling played a major role in “the expedition,” as it was called, which was a privately funded, intensive study of ocean life in an eight-square-mile area of the ocean off Bermuda from two miles deep to the surface, using diving helmets, trawls, dredges, and, of course, the bathysphere, with the goal of studying and classifying all life they encountered. To accomplish this ambitious goal, Beebe’s team was given the use of Nonsuch Island, a 25-acre gem off the east coast of Bermuda where there were two large buildings, once part of a hospital, that they converted into laboratory and living spaces. Beebe was also given use of the seagoing tug *Gladisfen* that the team used for trawling. According to Carol Grant Gould (2004) in her excellent biography of William Beebe:

The intrepid Gladisfen would blow a blast on its horn as Nonsuch came into view, signaling that they had live specimens. At the sound of the horn, the sleepy camp sprang to life. Jocelyn tossed her books to the floor and pushed away her typewriter while Gloria deliberately stored her slides and microscope where they would be safe from harm. The boys dashed in from tennis or swimming, scooping up armloads of the shallow enamel trays that were used to sort the catch as they went. Will came running from his writing desk or microscope, John from his fish tanks, Else Bostelmann from her easel, gathering up sketch book and paints to catch the evanescent colors of the fish before they faded into pallor.

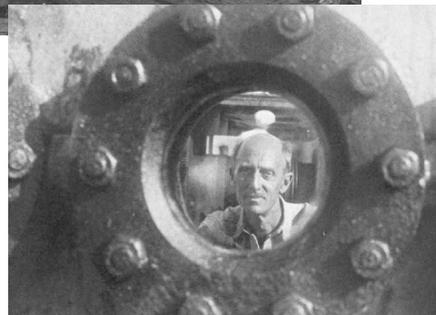
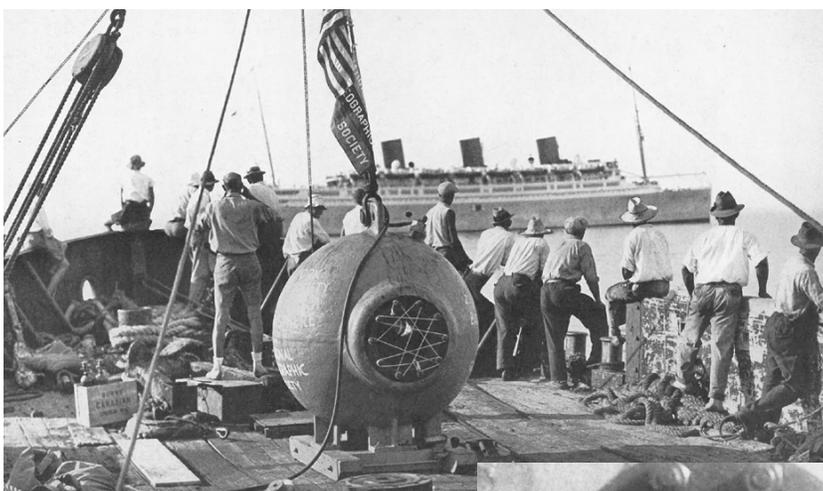


FIGURE 1. (above) Photo of the bathysphere used by the American naturalist, William Beebe, for his dives to observe the deep ocean fauna. (right) Beebe peering through the hatch. From the collection of Else Bostelmann



FIGURE 2. This painting on a black background (25.4 × 34.3 cm) by Else Bostelmann shows two *Dolichopteryx* (Opisthoproctidae), commonly known as barreleyes or spook fish.



FIGURE 3. Another black background painting (25.4 × 34.3 cm) by Bostelmann, simply labeled “Light-Green Fish,” was probably based on a trawled specimen of a post-larval *Haplophryne mollis*.

Another black painting (Figure 3), with the unhelpful label “Light-Green Fish,” was not so easily identified. These were clearly anglerfish, each with an obvious esca protruding from the top of the head, but they appeared transparent, and the only transparent anglerfish I know of is *Haplophryne*, which has distinctive horns on the head, not visible in these drawings. I therefore snapped a picture with my cell phone and sent the image to deep-sea fish expert Tracey Sutton, who suggested the painting might have been based on a trawled specimen of *Cryptopsaras/Ceratiias* (Ceratiidae) that had been skinned in the trawl. Skinning, which happens all too often to fragile deep-sea fish, would explain the

apparent transparency and the absence of caruncles, luminous bulbs located immediately in front of the dorsal fin. And as Tracey pointed out, the shape of the tail and the lateral compression of the body are good matches for these genera. However, as I learned more about the Beebe/Bostelmann collaboration and how meticulous they were, I felt such a mistake on their part was unlikely and took another look. I thought the shortness of the illicium (fishing pole) and the absence of any bifurcated fin rays in the caudal fin might suggest an alternative explanation, which is that this was actually based on a late-stage larval specimen. When I ran this by Tracey, he agreed and said his best guess was it might be based

on a post-larval *Haplophryne mollis*, which appears fairly white and has yellow spots as well as a large esca with almost no illicium. It would be fascinating to know how much, if any, input Beebe had on this piece. I thought at first we might get an opportunity to learn such back stories when we heard that Bostelmann kept detailed journals, but sadly as it turned out, these were destroyed in a flood. However, as I was astonished to learn, besides all the paintings laid out before me, there were a lot more papers and artwork stored away in a basement in Maine.

I was floored by all this treasure, but had no idea how to proceed. Fortunately, Janeen did. It took a while for the stars to align and a lot of hard work and energy on her part, but she managed to arrange an exhibit of some of these works that will go on display at the Lighthouse Art Center in Tequesta, Florida, in December. Setting up this exhibit made it possible to gain access to all those materials stored in Maine and unearth such gems as an original copy of *Half-Mile Down* inscribed: To Else Bostelmann from Will Beebe “with all grand memories” on November 30, 1934. There were also hundreds more paintings and sketches, such as a beautiful study of the shelled pelagic snails (see painting on opening page) Beebe observed frequently from the bathysphere. In one of his early dives, he described seeing these at 300 feet: “Small vibrating motes passed in clouds, wholly mysterious until I could focus exactly and knew them for pteropods, or flying snails, each of which lived within a delicate, tissue shell, and flew through life with a pair of flapping, fleshy wings.” And then at 500 feet: “Flying snails passed in companies of fifty or more, looking like brown bubbles. I had seen them alive in the net hauls, but here they were at home in thousands.” What would Beebe think if he knew that those “delicate tissue shells” are now beginning to be eroded by ocean acidification? Would he take up his mighty pen in their defense?

Among the many papers and documents we received were newspaper

clippings, photo albums, and some personal correspondence from which we were able to glean more background on Bostelmann and her remarkable career. We learned that she was born Else M. von Roeder in 1882 in Leipzig, Germany. She spent her childhood in Germany and Austria, where she attended private schools and trained in art at the University of Leipzig, the Academies of Fine Art of Weimar and Berlin, and the Königliche Akademie of Graphic Arts in Leipzig. Her artwork, which focused on nature, earned her a gold medal for drawing at Weimar and was exhibited in Leipzig, Berlin, Dresden, and Munich. Then, at the age of 27, she married an American, Monroe Bostelmann, moved to America, and gave up painting to have a family. They lived for a while in New York City, where Monroe worked as a concert cellist, and they had a daughter, Gertraude. Based on the correspondence, it appears that Monroe decided that they should leave NYC and grow cotton, an endeavor in which he had no experience. Things spiraled downward. No one would loan him money, and he couldn't get or keep a job. He was desperate, and his New York friends refused him help. The family ended up in Mexia, Texas, where Monroe died at age 40 under mysterious circumstances. The announcement of his death in the local paper says he was found unconscious by a roadside in Mexia in the middle of the afternoon. He died seven hours later in a hospital where doctors declared the cause of death to be "apoplexy, brought on from over-exertion." The upshot of this tragedy was that at age 38, Else Bostelmann was widowed, broke, and had a child to support.

The period between 1920 when she was widowed and 1929 when she joined

the Beebe expedition on Nonsuch Island must have been remarkable years, which makes the loss of her journals all the more tragic. Found among her papers was an interview published in the *Darien Review* (August 12, 1955) under the heading "Our Interesting Neighbors," with a byline for Beatrice Colgate, in which Bostelmann indicated that after moving to the United States she discontinued her painting "in order to do research on natural history." Then, according to the interviewer,

In 1929, having the necessary scientific knowledge, plus being a very fine artist, she went to Doctor William Beebe with some of her pen and ink sketches, hoping that he would find a place for her with the Zoological Society of Tropical Research, and for five years she was with him on his trips to Bermuda, where she did all of his drawing of fish which were brought up from the great depths, I asked her if she had

made any dives and she said, "In helmet and sneakers only. Doctor Beebe would not take me in the Bathysphere because I had a teen-age daughter and he didn't want me to be in danger."

The helmet mentioned in the interview (see Figure 4) was one that Beebe used often to introduce novices to the profusion of life beneath the waves. This was before snorkeling and scuba, and the idea of entering the ocean for anything other than salvage or harvesting was a new one. Beebe had initially taken up helmet diving during a 1925 expedition to the Galápagos, where he experimented with using a salvager's helmet, a cumbersome thing that weighed 60 pounds (Gould, 2004). He was instantly enraptured by what he saw and soon designed a more serviceable helmet that was fashioned out of copper, had two glass plates in the front, and weighed only 16 pounds in air.



FIGURE 4. Recently found Bostelmann papers included personal correspondence and photo albums. Both provided insight into day-to-day life during the William Beebe expedition on Bermuda's Nonsuch Island. The photo shows Bostelmann at work in her island-based studio. Beneath the table sits the diving helmet that she used to explore and paint the local reef communities.

A rubber hose attached to an inlet in the side carried air to the diver by means of a hand pump operated from the surface. The helmet was not attached to a dive suit but simply rested on the diver's shoulders (Beebe, 1934).

Bostelmann, under Beebe's guidance, used this helmet to explore the shallow water reefs around Bermuda down to depths of 35 feet. She also used it to turn the undersea world into her art studio. She described how she did this and what she saw in a series of articles published in the *Christian Science Monitor*. Each of these articles was illustrated with one of her detailed pen and ink drawings depicting life under the sea. In the first of the series, published July 18, 1935, there is a charming self-portrait of her at work in her undersea studio (Figure 6). The process she described involved attaching her canvas to a weighted music stand that was lowered from a boat on a rope. Her oil paint palette had lead weights attached to it, and her paint brushes were tied to the palette with strings so that they wouldn't float away—when she wanted one, she would just pull it down.

One of Bostelmann's underwater creations was included among the materials sent from Maine (Figure 5). It's a small canvas (33 × 27 cm) and although not a masterpiece, it is scientifically interesting because of the absence of longer wavelengths. Beebe was very interested in how the color spectrum changed with depth and made detailed observations, both directly and using a spectroscope, from the bathysphere, regarding how the longer wavelengths gradually disappeared as he descended. Bostelmann's ability to produce an accurate color representation of what she observed was more than simply painting what she saw, because she needed to be aware that the color of the paints would appear different underwater than they did in air. She apparently managed this by careful selection of the colors on her palette. Note that there are no oranges or reds in this painting, only muted yellows, and these are restricted to the foreground. She also said that she only painted at depths down to 25 feet because there were too few colors to work with at deeper depths.

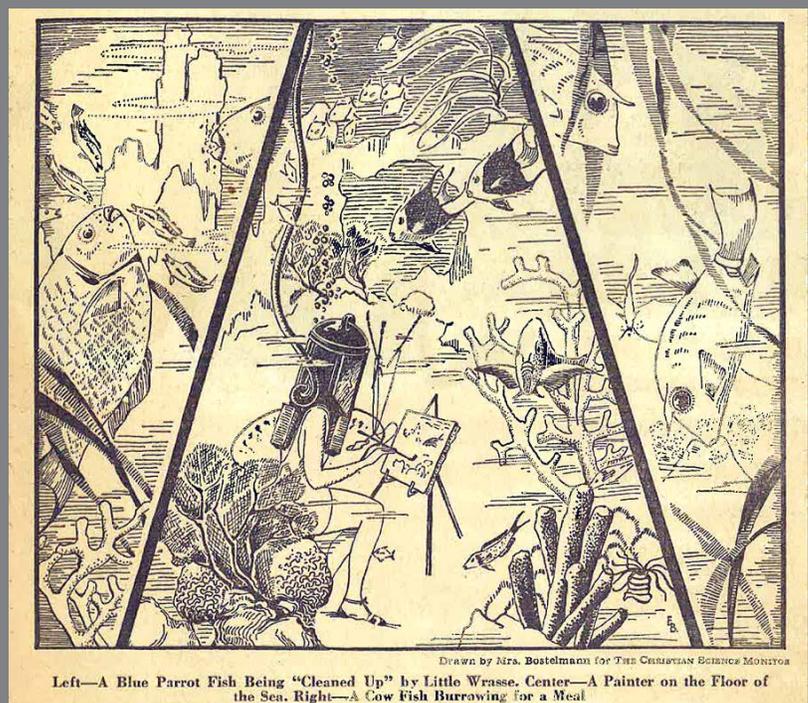
Painting underwater was quite an

attention grabber and afforded Bostelmann some small measure of celebrity separate from that which she garnered from being associated with the much publicized Beebe Bermuda expedition. She was a savvy enough businesswoman to parlay her minor fame into additional income from illustrating textbooks and children's books and creating marine-themed textile designs, wallpaper, and decorative panels, as well as murals for private yachts and bathrooms. A few of her decorative works turned up in the Maine cache, including a three-panel screen (168 × 178 cm) painted with squirrelfish and wrasse weaving in and out of undulating seaweed, and a lavender sea fan that hides two butterflyfish. There is also, my personal favorite, a small (16.5 × 28.6 cm) decorative panel in delicate pen and ink that depicts a deep-sea scene with a whipnose anglerfish (*Gigantactinidae*) shown in black and white, deep below the twilight depths and a brilliantly colored butterfly above the water line (Figure 7). She painted a number of panels like this, both of undersea and woodland scenes using



FIGURE 5. This oil (33 × 27 cm) by Bostelmann was painted “en plein water.”

FIGURE 6. A pen and ink by Bostelmann illustrated a *Christian Science Monitor* article dated July 18, 1935, and entitled “With an Artist at the Bottom of the Sea By Else Bostelmann, an Artist with Dr. William Beebe’s Expeditions Into Undersea Wonderlands.” The illustration shows and the article describes her method of painting underwater.



Drawn by Mrs. Bostelmann for THE CHRISTIAN SCIENCE MONITOR
 Left—A Blue Parrot Fish Being “Cleaned Up” by Little Wrasse, Center—A Painter on the Floor of the Sea, Right—A Cow Fish Burrowing for a Meal

the art nouveau style that first became popular when she was in training as an artist in Europe.

According to another clipping found among her papers (from the *Darien Review* dated July 14, 1955), Bostelmann's association with Beebe and the Zoological Society for Tropical Research extended over a 10-year period. Beyond the marine studies, she also did an extensive series of botanical illustrations that were originally inspired by the plant life she observed on Bermuda. Many of these were also published in *National Geographic*. She had a studio in New York City at One West 85th Street, and then, in her later years, she moved to Darien, Connecticut, where she maintained residence in the Old Stone House Studio at 15 Apple Tree Lane for 12 years. She remained active as a painter, illustrator, writer, and designer almost up to the time of her death in December 1961 (*Darien Review*, May 17, 1962).

All told, over 300 pieces of original art were uncovered in this cache. Else Bostelmann was a prolific artist. She was also a commercially successful artist who made a living from her art sufficient to support herself and her daughter and to pay for her daughter's education (as evidenced by paid bills found among her files). This is no small feat in any era, but in the 1920s and 30s, when women had only just secured the right to vote and were still largely treated as second- and third-class citizens, it was especially noteworthy. Her success was a consequence of her considerable skills, determination, and training in combination with the fact that the Department of Tropical Research, under Beebe's direction, was a leader in the hiring of women as lead scientists and field artists (McLeod, 2015).

It will be wonderful to see Bostelmann's art go on display to the public in December 2016 and be able to provide much more background and context for the artist and her creations than has previously been available. However, it is my sincere hope that her work from the Beebe expedition will eventually reach a more widely accessible venue than Tequesta, Florida, such

as the Ocean Portal at the Smithsonian's Natural History Museum, or better yet, how about our very own Smithsonian Museum of Oceanography? The ocean, after all, does represent more than 99.9% of the living space on the planet. It is certainly worthy of its own national museum. As Else Bostelmann brilliantly demonstrated—a gal can dream, and sometimes those dreams can come true. 🌊

REFERENCES

- Beebe, W. 1934. *Half-Mile Down*. Harcourt, Brace and Company, New York, 344 pp.
- Gould, C.G. 2004. *The Remarkable Life of William Beebe*. Island Press/Shearwater Books, Washington, 447 pp.
- McLeod, K. 2015. Sinking beneath the surface: William Beebe, the Department of Tropical Research and Marine Ecology. *Limnology & Oceanography Bulletin* 24(2):26–31, <https://doi.org/10.1002/lob.10021>.

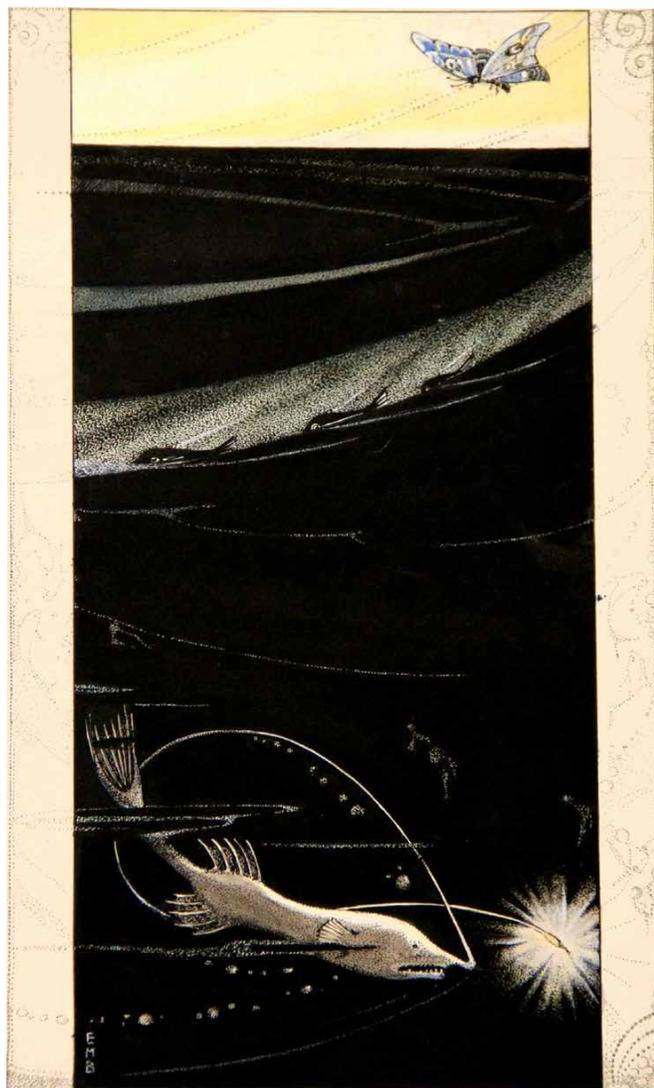


FIGURE 7. A pen and ink (16.5 × 28.6 cm) by Bostelmann shows a whip-nose anglerfish (*Gigantactinidae*).

ACKNOWLEDGMENTS

I am indebted to Janeen Mason who did all the hard work needed to bring Bostelmann's work into the light of day, including convincing me to write this article; to the Lighthouse Art Center in Tequesta, Florida, for hosting the upcoming exhibit (December 22, 2016, to March 4, 2017); to the S. Kent Rockwell Foundation for financial backing for the exhibit; to Shirley Kent for her reading and research of many of the Bostelmann documents; and to Tracey Sutton for his assistance with the fish identifications. Special thanks to Else Bostelmann's great grandson Michael Crumpton and his wife Margetta Geerling for their generosity in making these artifacts available for study and exhibit.

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